COMPUTERWORLD

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Vendors Move To Compete With 138, 148

By Molly Upton
Of the CW Staff

After IBM introduced its lower priced, more powerful 370/138 and 148, other vendors responded with comparable adjustments.

As a result, users can now consider mid-range systems that typically have a price spread of only $100,000 between IBM and the leading competitors.

This is, in some cases, 50% less than those that existed before IBM introduced the systems last summer.

A look at Burroughs, Univac, IBM, Honeywell, Control Data Corp. and NCR offerings reveals some leapfrogging in prices as many sallied forth with their lower cost MOS memories to combat IBM's lower price umbrella with its 370/168 and 148.

Other manufacturers introduced new products and some enhanced their machines' performances.

Although, as one industry source pointed out, IBM normally offers more for increased cost when it brings out a new product, this time IBM offered more for less.

As *EDP Industry Report* observed during the summer, what had been the ceiling (in prices with the 370/135 and 145) became the floor (with 370/138 and 148 prices).

However, Univac rallied and realigned its product offerings. It gave many of them extended memory and lowered system prices; it also lowered the CPU prices on at least one model [CW, Aug. 30].

Only a week later, Burroughs unveiled its lower memory prices which reduced the price tags on its B2800, 3800 and 4800.

Last week, Honeywell took several steps to increase the price/performance ratio of its 60 series.

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Itel to Unveil Own '158'

By Ronald A. Frank
Of the CW Staff

SAN FRANCISCO – Itel Corp. this week will unveil a large CPU described as "100% hardware and software plug-compatible" with the IBM 370/158.

Called the Advanced System/5 (AS/5), the Itel machine will operate with existing IBM software and is said to provide some hardware features not available on the Model 158. The CPU will reportedly be available on both a purchase or long-term lease plan.

Although exact prices have not yet been quoted, the machine is expected to be priced "competitively" with comparable IBM CPUs. First deliveries have been scheduled for early next year, sources said.

The AS/5 is expected to be the first of an Itel family of machines. AS/4, plug-compatible with the 370/148, is also scheduled for introduction, the sources said.

Six configurations reportedly will be introduced within the AS/4 and AS/5 series. One of the AS/4 systems is believed to have "1.4 times the power of a 370/148 or .7 times the power of a basic 370/158," sources reported.

The AS/5-3 is designed to compete with the 370/158-3 and reportedly has 1.8 times the power of a basic

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Unusual 'Gag Order' Put On Calcomp vs. IBM Data

By E. Drake Lundell Jr.
Of the CW Staff

LOS ANGELES – Much of the important evidence to be entered in the California Computer Products, Inc. (Calcomp) vs. IBM antitrust case starting here next month may never be made public if a "gag order" signed by Judge Ray McNichols is allowed to remain in effect.

The order is designed to protect all the parties in the current crop of cases against IBM – Calcomp, Memorex, Sanders, Forro Precision, Transamerica and Hudson Leasing, as well as IBM – from having to publicly expose future business plans or trade secret information to other competitors or to the public.

However, as the order is written, it allows any party to the case to "designate" any materials as "nonpublic" without having to prove those materials are, in fact, proprietary business or trade secret information.

Therefore, any of the litigants can claim any document that is damaging to its case should be nonpublic and that request will be honored by the court unless challenged by another party to the case, which is highly unlikely.

And it is happening: "There have been and are many documents filed as nonpublic," a clerk with the court said last week.

To protect the parties from competitive disclosure, the first paragraph of the order states "nonpublic documents or information obtained by discovery in these cases . . . shall not be used by the parties to these proceedings for business or competitive purposes or for any purpose whatever other than for the preparation and trial of these cases . . ."

(Continued on Page 3)

Another Election Year Casualty

House Unit Kills Grants Data Base

By Edith Holmes
Of the CW Staff

WASHINGTON, D.C. – The idea was to make a data bank on federal assistance programs the single national source of funds available for the civic projects of states, counties and local governments.

But it was an idea whose time had not yet come. The bill that would have made the data bank a reality became just another election year casualty last week when the House Government Operations Committee refused to bring the bill to the House floor.

But there may be enough interest in such a bill in the House that could carry it all the way through Congress next year. Rep. Charles Rose (D-N.C.), chairman of the House Subcommittee on Computers, expressed enthusiasm for the concept at the National Computer Conference and many other public forums this year [CW, June 28].

Nevertheless, on Sept. 30, the General Services Administration (GSA) ended its four-city, three-month test of "Project First," a data bank of grants for rural areas developed by the U.S. Department of Agriculture [CW, Sept. 20].

The system is now known as the Federal Assistance Program Retrieval System (FAPRS).

"While Project First was successful, it wasn't as successful as we hoped it would be," a GSA spokesman said, adding "FAPRS was really only part of the test. We were trying to determine what impact terminals will have on the GSA's federal information centers."

Thus far, FAPRS seems to have been used to a greater extent in Los Angeles, where the Southern California Association of Governments spread the word, the spokesman said.

The project was "less successful" in Philadelphia, but the Pennsylvania Department of Agriculture's Bureau of Rural Affairs already offers FAPRS to the state's cities and towns free of charge, he noted.

"Computer use is new to most of us in this organization and terminal use is much simpler than we thought it would be," the spokesman said.

While GSA tests FAPRS and becomes familiar with computer use, the Office of Management and Budget (OMB) is reserving its opinion on the project. It is continuing to believe, however, many people

(Continued on Page 2)

Ford Signs Tax Act With SSN Identifier

WASHINGTON, D.C. – The Tax Reform Act of 1976, signed into law by President Gerald R. Ford last week, expands use of the Social Security number (SSN).

States and local governments can now use the SSN as an identifier for tax administration purposes, in general public assistance programs, for drivers' licenses and for motor vehicle registration.

The law reverses the section of the Privacy Act of 1974 that prohibits government agencies from denying rights and privileges to individuals who refuse to provide their SSNs [CW, Aug. 2].

Government employees who disclose the number without authorization or otherwise misuse the SSN could be guilty of a misdemeanor, punishable by a fine of up to $1,000 or by a prison term of up to one year.

Congressman Warns OTP Head Against Influencing AT&T Suit

By Ronald A. Frank
Of the CW Staff

WASHINGTON, D.C. – The White House Office of Telecommunications Policy (OTP) may be trying to influence the Justice Department's antitrust suit against AT&T, according to Rep. Timothy Wirth (D-Colo.).

In a letter last week, Wirth cautioned OTP Director Thomas Houser about public statements made concerning the antitrust suit. Houser had issued a statement in late August questioning whether the Justice Department suit had been adequately researched, especially in the area of economic justification.

"Further statements on your part might be interpreted as an attempt by the White House to influence the litigation," Wirth said in his letter.

"I strongly recommend that there be no further communication between your office and the Justice Department regarding the AT&T litigation. . . I feel it would be unwise for you to be personally involved because of your prior association with Sidley and Austin, which as you indicated is one of several [law] firms representing the telephone company in the antitrust action," Wirth said.

The letter to Houser was an outgrowth of testimony given by Houser and Donald Baker, U.S. Assistant Attorney General, at the recent hearings on the Consumer Communications Reform Act held by the House Subcommittee on Communications. Wirth is a member of the subcom-

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Please address all correspondence to the appropriate department at 797 Washington Street, Newton, Mass. 02160. Phone: (617) 965-5800. Telex: 92-2529.

OTHER EDITORIAL OFFICES: **England:** Computerworld Publishing Ltd., 140-146 Camden Street, London NW1 9PT. Phone: (01) 485-2248/9; Telex: 264737. **W. Germany:** Computerworld, c/o Computerwoche GmbH, 8000 Munchen 40, Tristanstrasse 11. Phone: 36-40-36/37. Telex: 5215350. **Asia:** Computerworld, c/o Dempa Computerworld Company, Dempa Building, 1-11-15, Higashi Gotanda 1-chome, Shinagawa-ku, Tokyo 141. Phone: (03) 445-6101. Telex: 26792.

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House Unit Kills Data Base Bill

(Continued from Page 1)

are simply too enamored with this kind of technology.

The OMB administers many of the grant and loan plans included in the FAPRS data bank. The OMB is also responsible for publishing the "Catalog of Federal Domestic Assistance," a 1,100-page manual that could be phased out if the computerized version is adopted.

In the hearings on the various versions of the Senate bill last March, Paul H. O'Neill, OMB deputy director, maintained Congress should make no new laws in the area of information on federal assistance programs.

Instead, he argued, the OMB and Congress should continue "as we have in the past to work together to add information to the catalog," he argued.

The catalog is available on magnetic tape for those who want to use a search program on it, he stressed.

Last week, Dale McOmber, OMB assistant director for budget review, reinforced the position taken by O'Neill: "Any intelligent person can use the catalog and do what FAPRS does," he said.

O'Neill was hit hard at Senate hearings on the bill for suggesting state and local governments spend their own money if they want to find out what federal funding might be available to them.

The senators considered it appalling that some 20 states find it necessary to have representatives here whose primary duty in many cases is to sniff out grants.

They also noted the catalog is frequently out of date and doesn't tell state and local officials what they really need to know: Is the program currently funded and does their community meet its eligibility requirements?

FAPRS answers the questions, according to its creator, Paul R. Kugler, who heads the plans and programs staff of the Rural Development Service in the Department of Agriculture.

It would also help to spread grant funds around from the large, well-endowed cities and universities to the smaller towns and colleges, he said.

Kugler doesn't think the catalog is enough. "People in this country have a right to know where their tax dollars are available to meet their basic needs. That's what democracy's all about. This system does that."

FAPRS Ends Orbosonia's Search

WASHINGTON, D.C. – Orbosonia, Pa., a town of 550, had outgrown the double-wide mobile home that served as its medical center, but eight months of searching through catalogs of federal assistance programs revealed no federal funds for medical facilities.

Finally, however, with the help of the computerized Federal Assistance Program Retrieval System (FAPRS), $460,000 was located by the Pennsylvania Department of Agriculture's Bureau of Rural Affairs.

FAPRS, developed by the U.S. Department of Agriculture, was in its test phase then, and on a chance the Bureau of Rural Affairs used the data bank to help Orbosonia apply for funds.

Another $40,000, raised by the Lion's Club, Kiwanis Club and Junior Chamber of Commerce of the town, will help pay for a new center, he added.

Because of its success in helping Orbosonia find funds with FAPRS, the Bureau of Rural Affairs has arranged for this service for all of Pennsylvania, the spokesman said.

Wirth Warns OTP on Bell Suit

(Continued from Page 1)

mittee.

During Houser's appearance, Wirth questioned the OTP director on why he had visited Baker in the Justice Department to discuss the antitrust case.

Houser held a press conference on Aug. 25 at which he cast doubt on the Justice Department suit. After the public statements by Houser, Baker told the subcommittee he called Houser. "I had a duty to make him understand the case," Baker said.

"If he had the notion this was a random frolic, I wanted to let him know how the world really was," Baker told Wirth during the hearings.

According to Baker, Houser visited Baker's office on Sept. 2, explaining he wanted to know the "economic rationale" for the suit.

"I discussed with Houser the process the Justice Department had gone through before the antitrust case was filed," Baker said. "I did not want him to see documents on the case," but he gave orders Houser should talk to the chief economist working on the litigation, Baker said.

Earlier, Wirth had asked Houser about his involvement with Sidley and Austin. Houser said he had been a partner in the Chicago law firm, but added he had never worked on the AT&T case.

Wirth asked Houser if it was not common practice for partners in a law firm to share in clients' fees and Houser indicated it was.

Houser said he essentially regarded telecommunications as a non-partisan area of interest. Because of this the Administration has taken a position on the antitrust litigation, the OTP chief said.

Late last week OTP had not received Wirth's letter and Houser could not comment on the situation, an OTP spokeswoman said.

Itel '158' Debuting This Week

(Continued from Page 1)

370/158, according to an industry source. Multiprocessor configurations will also be introduced, sources indicated.

Both CPUs will be built by National Semiconductor Corp. and are believed to use a bipolar memory that is faster than the storage used in the IBM machines. They are described as field-upgradable.

The Itel CPUs have smaller dimensions than their IBM counterparts and have "integrated channels." They are said to operate "about nine degrees cooler" than the IBM mainframes.

At least one East Coast user has placed an order for the new CPU to upgrade from a 155 now running with both IBM and independent peripheral subsystems.

He said he has seen the AS/5 machine operating "in its preliminary stages" at an Itel facility. "We are satisfied that the CPU will operate as a 100% plug-compatible system to our 155," the user added.

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Vote Counters Find 'Too Many DPers Spoil the DP'

By Ann Dooley
Of the CW Staff

PHOENIX – Vote counters in Maricopa County have discovered that "too many cooks spoil the broth" – or, rather, that too many DPers spoil the computer operations.

Results of the Sept. 7 election were delayed by two hours when two ballot multiplexer minicomputers (BMX) overheated because there were too many people in the room. "There were too many bodies and not enough air conditioning," according to Mike Griffin, county DP director.

One mini would begin to slow down and then the other would follow, he said.

Finally, someone suggested the disturbed operations might be the result of static electricity created by the people walking around the room and scraping their feet on the carpet, he added.

Heavy rubber mats were placed in the conference room where the counting was being done and one of the minis was taken to the main DP room.

The processing of ballots continued, but it was very slow, Griffin noted.

Overheating Probability

The probability of overheating is attributed to the kind of minicomputer being used, according to a spokesman for Computer Election Systems (CES), vendor of the BMX.

The more card readers attached to the machine, the more heat it generates, thus increasing the likelihood of such a failure, he explained.

This was the first trial of the election system software written by Maricopa County to replace the package used in previous years [CW, June 7].

"Everything worked out fine except for the heat problem and we feel we have solved that," Griffin said.

Steps have been taken to ensure such problems will not occur in the upcoming November election, he noted. Both minis will be placed in the main DP room where static problems will be eliminated and cooling will be provided by heavy-duty air conditioning.

Testing has also been done with positive results, according to Griffin: "There were eight or nine people working and a few observers were in the room for the last election, so we put that number of people in our test plus 10% more and told them to mill around in front of the computers."

Calcomp Trial Gets 'Gag Order'

(Continued from Page 1)

While that is a fairly standard clause in cases of this type, legal observers last week indicated the use of the phrase "nonpublic" rather than "proprietary" or "trade secret" was a new wrinkle.

The second sentence of the order provides that "each producing party shall designate those materials which it claims are nonpublic" unless challenged by another party to the case.

In most cases, legal sources said, it is the obligation of a litigant who wants to keep something out of the public record to prove the material is in fact proprietary or of a trade secret nature.

In this case, however, any party can just claim it wants to keep a document out of public view; it is then the responsibility of another party to prove it should be public.

This is unlikely because few of the litigants in the cases have the resources to devote to such legal issues, sources said. Since all of the "nonpublic" material will be seen by the judge and jury, most of the litigants will not worry whether it is seen by the public, they added.

Privileged Documents

Under Rule 34 of the Federal Rules of Procedure, parties in such litigation must produce all documents that may be relevant to the case unless those documents are privileged.

Under the rule, the parties who want to keep a document out of the public record – rather than another party in the case – are required to prove those documents are privileged.

With this ruling, the judge seems to have the procedure "backward," according to one lawyer, because a firm can just designate any document as nonpublic and it is up to another party in the case to prove it is in fact public.

In the past, IBM has tried to keep a great deal of material in the current antitrust cases against it from public view. It has twice fought the issue over certain documents in the U.S. vs. IBM case all the way to the Supreme Court, only to be rebuffed and foreed to turn over the documents anyway.

In the Telex suit against the firm, IBM fought a protracted legal battle to keep its internal memoranda and other documents out of the public record with the same outcome.

In the new cases, the use of the phrase "nonpublic" appears to set a precedent since only information about a trade secret or proprietary customer lists were kept from the public view in the past, legal observers said.

The "nonpublic" phrase, however, is very hard to define since there is no precedent for its use. Effectively, the order means any of the firms can keep anything they want from public view, the sources said.

Catamore Intending To Appeal IBM Case

BOSTON, Mass. – Catamore Enterprises, Inc. intends to file a petition for a rehearing with the U.S. Court of Appeals here, according to its attorney, Thomas K. Christo.

Recently the appeals court vacated a jury judgment ordering IBM to pay Catamore $11.4 million in damages and remanded a new trial [CW, Oct. 4].

The appeals court based its finding on questions of contract liability. It observed Catamore failed to file suit within one year of signing its Systems Engineering Services agreement as specified in the contract's limit of liability.

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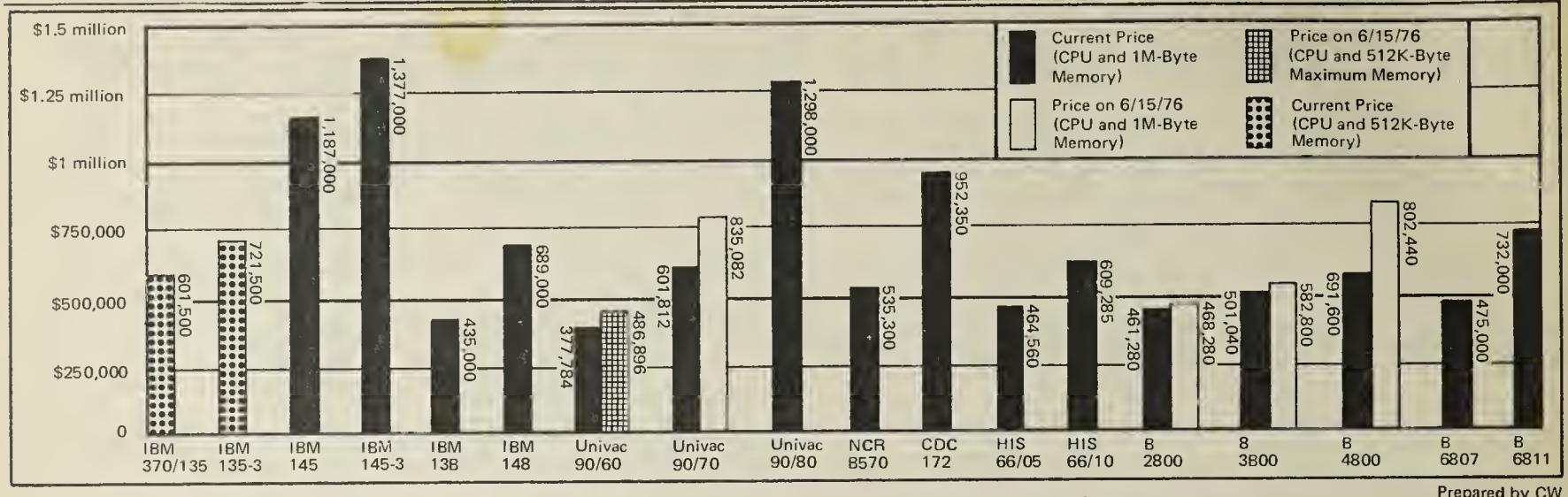

Chart shows diminishing differences in purchase prices based on CPU and 1M byte of main memory.

Prepared by CW

Manufacturer	IBM						Univac			NCR	CDC	HIS		Burroughs				
Model	135	135-III	145	145-III	13B	148	90/60	90/70	90/80	B570	172	66/05	66/10	B2800	B3800	B4800	B6807	B6811
Min-Max Memory (Bytes)	512K	512K	160K-2M	983,000	500K-1M	1M-2M	512K-2M	131K-2M	512K-4M	256K-1M	32,768-131,072	384K-2M	384K-4M	100K-1M	100K-1M	200K-1M	393K-3.146M	393K-3.146M
CPU and 1M Byte Purchase ($)	** 601,500	** 721,500	1,187,800	1,377,800	435,000	689,000	377,784	601,812	1,298,400	535,300	(60-bit words) 952,350	464,560	609,285	461,280	501,040	691,600	475,000	732,000
CPU + 1M Byte ($) (Term Lease in Years)	** 11,430 (4)	** 14,615 (4)	22,335 (4)	27,430 (4)	11,415 (4)	17,280 (4)	10,414 (5)	16,602 (5)	26,568 (5)	11,610 (5)	17,756 (3)	10,331 (5)	12,699 (5)	10,822 (5)	11,748 (5)	15,388 (5)	12,870 (5)	16,400 (5)
Purchase/ Lease Ratio+	53	49	53	49	38	40	36	36	48.9	46.1	53.6	44.9	47.9	42.6	42.6	44.9	36.9	44.6

** For 512K + Based on given term lease rate including maintenance.

Prepared by CW

A look at purchase prices as well as long-term lease rates and the lease/purchase ratios for a CPU and 1M byte of main memory gives an idea of choices available to users.

Mid-Range Machines Competitive in Price, Features

By Molly Upton
Of the CW Staff

Despite widely varying typical configurations, mid-range systems are highly competitive in both price and equipment features available to users, according to figures compiled by *Computerworld* and summarized in the accompanying charts.

Because of across-the-board adjustments, users now have more options open to them within a given price range.

IBM described "bare bones" systems where prices begin. These include a CPU and associated components with 1M byte of memory (except for the 370/135, which has only 512K), 270M bytes of disk on four spindles and a card reader as well as a 1403-N1 printer on the 370/135 and 145 and a 3203-4 on the 370/138 and 148.

On a four-year lease, the monthly rates are $16,330 for a 135, $16,390 for a 138, $28,520 for a 145 and $22,750 for a 148.

Purchase prices are $813,860 for a 135, $639,050 for a 138, $1.5 million for a 145 and $918,440 for a 148. The 145 price jumps compared with the others because of required gear to hook up the printer, an IBM spokesman explained.

To give some idea of the range in performance of Univac systems, the 90/80 is three to four times faster than the 90/60 in completing selected storage-to-storage instructions.

A Univac 90/60 with 524K memory, 500M bytes of disk, five 1,600-bit/in. tape drives, two printers, card reader and punch and up to eight lines of communications sells for $939,500 and rents under a five-year plan for $23,104/mo.

A 90/70 with 786K, 1,500M-byte disk, five tape drives, 6M-byte fixed head disk, two printers, card reader, punch and the same communications capabilities sells for $1.6 million and leases for $40,444 on a five-year plan.

These two systems are intended to bracket the IBM 148, Univac said.

A 90/80, which Univac can propose against either a 148 or 158, depending on the size, with 1.5M-byte memory and the same peripherals, costs $2.5 million or $56,858/mo under a five-year plan.

An NCR 8570 Criterion with 512K, a 600 card/min reader, thermal printer, VS-1 package, 1,200 line/min printer and 800M bytes of disk, including controller, costs $621,550 or rents for $13,856/mo under a five-year plan. The same system with 400M bytes of disk costs $564,750 or $12,775/mo, a spokesman said.

Control Data Corp.'s Cyber 172, which uses 60-bit words, costs nearly $2.5 million for a system loaded with peripherals.

The gear includes 131,072 words of

(Continued on Page 6)

PRICE COMPARISON OF COMPETITIVE CONFIGURATIONS
I Dated 6/76, with 370/135 as Standard
II Dated 9/76, with 370/13B as Standard

I Manufacturer	IBM	B	HIS	Univac
System	135	3800	66/10	90/60
Purchase	1.00	0.84	0.89	0.97
Minimum Monthly Maintenance	1.00	1.09	1.11	1.66
Rent - 8 hrs. (Mon.-Fri.) Maint.	1.00	0.82	0.90	1.00
Rent - 16 hrs. (Mon.-Sat.) Maint.	1.00	0.88	0.97	1.06
Rent - 24 hrs. (Mon.-Sun.) Maint.	1.00	0.94	0.97	1.12
Five-Year Rent - 8 hrs. (Mon.-Fri.) Maint.	1.00	0.83	0.95	0.99
Five-Year Rent - 16 hrs. (Mon.-Sat.) Maint.	1.00	0.86	1.02	1.06
Five-Year Rent - 24 hrs. (Mon.-Sun.) Maint.	1.00	0.86	1.02	1.13

II Manufacturer	IBM	B	B	HIS	Univac
System	138	3800	6800	66/05	90/60
Purchase	1.00	1.00	1.00	1.15	1.07
Minimum Monthly Maintenance	1.00	1.01	1.25	1.06	1.38
Rent - 8 hrs. (Mon.-Fri.) Maint.	1.00	0.92	0.98	1.00	1.05
Rent - 16 hrs. (Mon.-Sat.) Maint.	1.00	0.99	1.06	1.08	1.12
Rent - 24 hrs. (Mon.-Sun.) Maint.	1.00	1.05	1.13	1.08	1.19
Five-Year Rent - 8 hrs. (Mon.-Fri.) Maint.	1.00	0.93	1.01	1.05	1.05
Five-Year Rent - 16 hrs. (Mon.-Sat.) Maint.	1.00	1.04	1.00	1.14	1.12
Five-Year Rent - 24 hrs. (Mon.-Sat.) Maint.	1.00	1.04	1.00	1.14	1.20

Prepared by L.F. Rothschild & Co.

The above tables indicate maintenance prices compared with those offered by IBM. They include the recent Honeywell Information Systems and IBM changes.

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W. Curry

Survey Finds Mid-Range Systems Price-Competitive

(Continued from Page 4)

main memory, 14 peripheral processors, three 1,200 line/min printers, two 1,200 card/min readers and controllers, a total of 10 tape drives (7- and 9 track) and two controllers as well as 2,400M bytes of disk in 12 drives with three controllers and channels. The lease price is $52,866/mo on a three-year basis.

The minimum number of peripheral processors on a Cyber 172 is 10, which are included in the basic CPU and memory price.

A Honeywell 66/05 with 1M-byte memory, a 1,050 card/min reader, a 100- to 400 card/min punch, 1,200 line/min printer, four 75 in./sec tape drives and a total of 351M characters of disk, as well as a front-end network processor with eight lines, sells for $853,524. The lease price under a five-year plan is $19,449/mo.

The 66/10 with the same card equipment and printer, four 125 in./sec tape drives, disk storage totaling 705M characters and a front-end network processor with eight lines sells for $1.1 million and leases for $24,778/mo under a five-year plan.

Honeywell Information Systems' (HIS) basic price for a CPU and 1M-byte memory includes an I/O multiplexer for 18 channels, a spokeswoman said.

Consistent with its theory that Burroughs users often do not need as much memory for the same types of jobs as do IBM users, Burroughs listed most of its typical configurations with less memory.

As an example of its B2800, Burroughs described a 3 mHz processor, 200K-byte memory, an eight-channel I/O subsystem, operator console, card reader, a 1,100 line/min printer and 130M bytes of disk. This system costs $386,000 and a five-year lease is $8,700/mo.

A B3800 with a 4 mHz processor, 300K-byte memory, a 16-channel I/O subsystem, an operator console, card reader, 1,100 line/min printer and 130M bytes of disk costs $445,600 and leases under a five-year agreement for $10,140/mo.

A B4800 with an 8 mHz processor, 400K-byte memory, and the same peripherals as the 3800 costs $572,500 and leases for $12,850/mo under the five-year plan. Before its price adjustments, this system was priced at $683,340, a Burroughs spokesman said.

Burroughs described a B6807 with a 6.7 mHz processor, 1.5 μsec access to main memory, 786K-byte memory and 20-channel I/O subsystem.

It also has an operator console with dual displays, card reader, punch, 1,100 line/min printer, three tape drives and 348.8M bytes of disk and sells for $741,200 or leases for $18,180 under the five-year plan.

The B6811 has a 6.7 mHz processor with 450 nsec access to main memory, 1.18M-byte main memory and a 20-channel I/O subsystem. With a 1,500 line/min printer, three tape drives and 523.3M bytes of disk, the system costs $1.1 million or $25,450 on the five-year lease.

Vendors Competing With 370/138, 148

(Continued from Page 1)

Although, as vendors observed, there are several factors in addition to price, price remains as one of the few means of comparison on an across-the-board basis.

On a purchase price-only basis, however, there appear to be numerous alternatives to the IBM machines.

The purchase price, excluding maintenance, of a CPU with 1M byte of memory was selected as the constant for price comparison.

Lease prices include maintenance. The purchase lease ratio was calculated using the purchase price and the best lease price, or long-term plan most often quoted by the manufacturer.

To be sure, price alone is not the only factor.

Burroughs, for instance, emphasized its systems could be even more competitive than the straight comparison on the basis of a CPU and 1M byte of memory because its systems do not normally need as much memory as IBM units.

Honeywell increased the speed of its 66/10 by 62.5% compared with the previously existing 66/10, as well as expediting other systems [CW, Oct. 4].

The pricing of maintenance is another factor. When L.F. Rothschild & Co., an investment banking and brokerage firm, looked at figures in a recent report, it made the following observations: "When overtime maintenance service charges and other service factors are included, the difference between IBM's systems prices and its competitors' before the price changes was not nearly as material as it appeared at first glance."

In fact, after analyzing "all of the realistically important detail items that comprise a computer configuration and maintenance coverage," not only is IBM the low-price competitor with its 370/138 and 148, but it was "almost equally price competitive before" these machines were announced, Rothschild said.

The Rothschild report observed the competitors' pricing mechanisms seem to be "more simply a function of keeping price within a prescribed range relative to a directly comparable (i.e., in terms of memory, speed and size) IBM product rather than to any sophisticated performance evaluation scheme.

"We also find that IBM's competitors cleverly utilize maintenance pricing schedules to favorably alter rental and lease pricing comparisons," Rothschild said.

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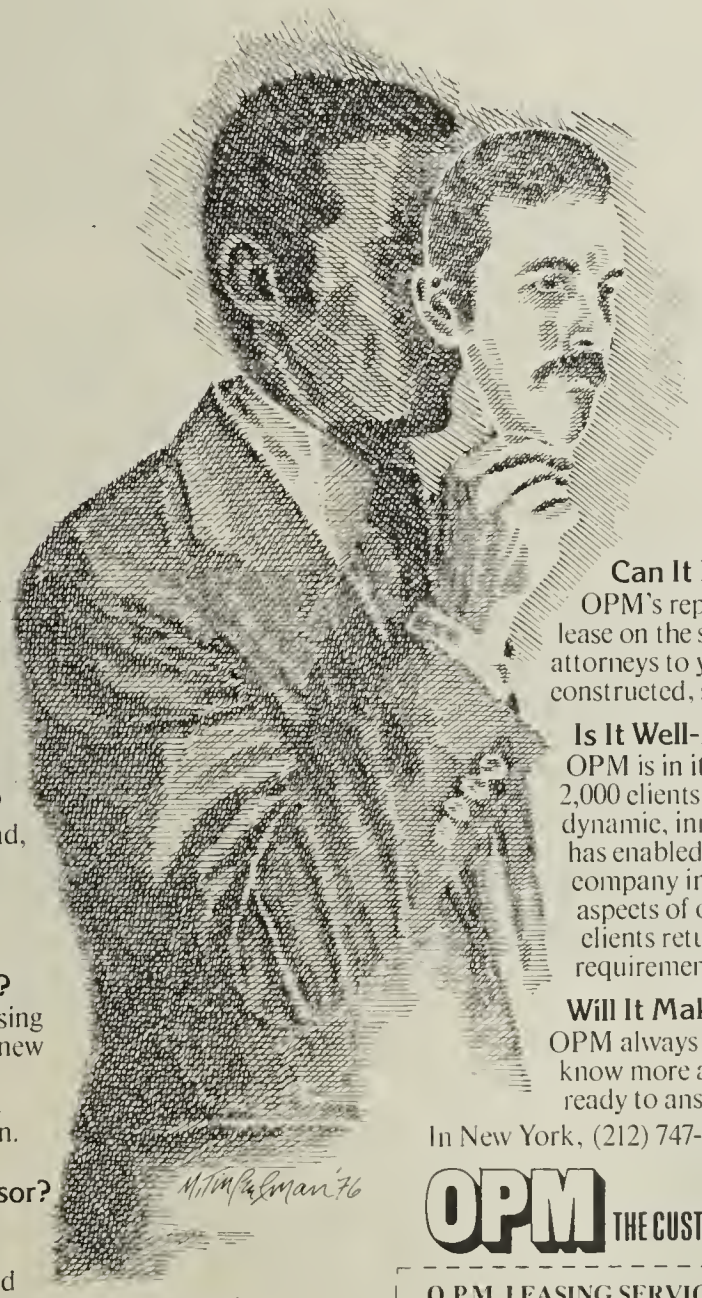

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CW01

Lawyers Exonerate DP in Prisoner's Tax Fraud Acts

By Molly Upton
Of the CW Staff

LEAVENWORTH, Kan. – An inmate at the federal penitentiary here was convicted of conspiracy for filing false U.S. income tax claims and cashing $19,000 in refund checks, but no evidence was presented linking his actions to use of either the penitentiary's stand-alone computer or its link to the Infonet network, according to both attorneys at the trial.

Despite extensive press coverage alleging a connection between the penitentiary DP training program's stand-alone NCR computer, an Infonet link and James Ready's false tax returns, no such affiliation was established, according to Assistant U.S. Attorney James Pusateri.

Word of the connection was carried initially in the *Wichita Eagle and Beacon* newspaper, and subsequently picked up by other papers and at least one national magazine.

In the opening statement of Ready's trial, his attorney, Thomas Dawson, indicated other prisoners had used the prison's computer facilities to figure out percentages of returns to file. However, Dawson said, testimony to this effect did not develop.

Both Dawson and Pusateri agreed that Ready's actions were those which could have been done with pen and pencil.

Ready's wife, who was not in prison at the time, was also convicted of conspiracy and conversion of two refund checks, Pusateri said.

Evidence of Returns

Pusateri said he had evidence Ready and his wife had been busy since 1973 filing false tax claims for a total of about $80,000 in refunds. However, Pusateri said he filed charges only for those checks which Ready received while in his jurisdiction.

Although Ready's filings appear somewhat prolific, Pusateri said it seemed to him to be a process someone could do without a computer.

Rehabilitation Program

Where does the computer angle come in?

As part of an inmate rehabilitation program, the prison has a stand-alone NCR Century 200 system on which it trains prisoners.

The prisoners set up a corporation, Federal Prison Industries, which has obtained contracts for program development from the Department of Agriculture.

In addition, a Leasco, Inc. terminal was installed in November with a line to Infonet, the Computer Sciences Corp. (CSC) network used by several federal agencies including the Department of Agriculture.

But the IRS is also among those agencies using Infonet.

This left observers to speculate on the possibility inmates were somehow accessing IRS data on which returns were being audited, on complex calculations acceptable in returns or any number of other pieces of data thought to be maintained by the IRS.

Press reports brought prison officials, inmates and CSC rallying to defend the reputation of the Infonet link in the prison.

Warden Charles Benson said there has been no indication of any connection between the Ready case and the prison's computer and terminal.

Inmate Walter E. Murgg sat down at a typewriter and wrote a one and one-half page letter refuting charges printed about Ready's crime and implications that the computer training program was involved and sent it to news publications.

"Any fraud that may or may not have been perpetrated against IRS does not and did not include any participation by the computer at this institution," Murgg said.

"This program has proven to be the most viable in the entire prison system in terms of rehabilitation. The graduates can return to society with a marketable job skill and experience and the recidivism rate is very low compared to the national average.

"We are proud of this program," he stated.

Security Precautions

An Infonet spokesman cited the precautions taken at the prison in addition to those security precautions inherent in the Infonet system.

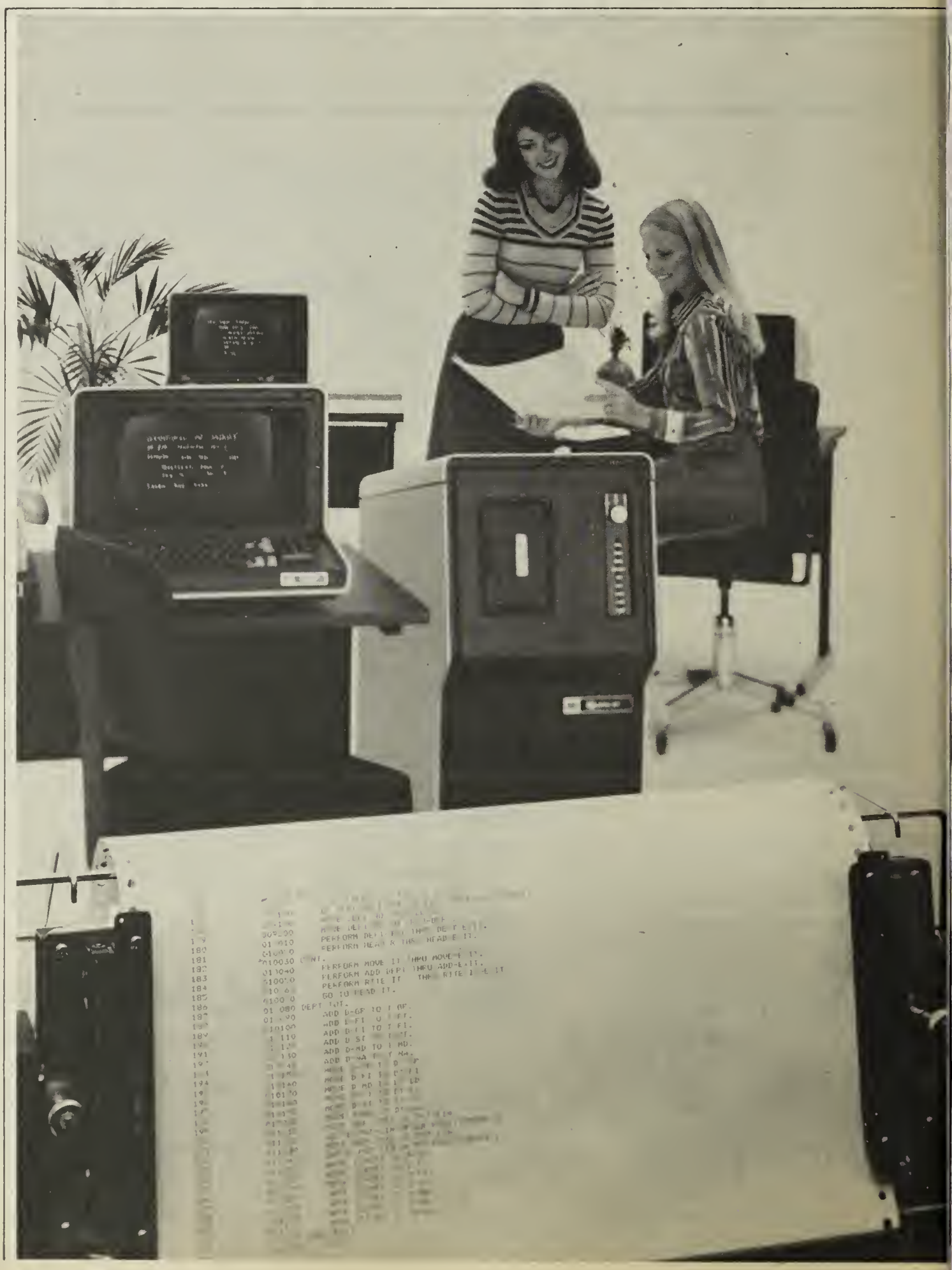
The terminal is kept in a locked room when not in use; either the DP manager or his assistant is at the terminal whenever it is in use, according to the spokesman.

The prison operator only gives outside lines to those whose voices she recognizes, and printed copies of all work performed on terminals are reviewed daily.

Also, the Infonet link was not established until long after Ready had been filing false tax claims, he pointed out.

Finally, Ready was not part of the DP program and had no access to its facilities.

"CSC says flatly nobody broke into our system and it's impossible for a Leavenworth convict to have misused our system," he continued.



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But T/S System 'Too Little, Too Soon'

IBM Rushed 67 to Mart to Maintain Status: Justice

By Catherine Arnst
Of the CW Staff

NEW YORK – The 360/67, IBM's entry into the time-sharing market, was introduced as a "fighting machine" to combat the gains made by General Electric with prestigious scientific time-sharing users, but it was "too little, too soon," according to documents filed as evidence by the Justice Department in the U.S. vs. IBM antitrust trial here.

The 360/67 was rushed onto the market, without proper programming support and with promised delivery schedules that would later prove impossible to meet, in order to maintain IBM's position as a market leader, the government is contending.

The documents, mainly internal IBM memoranda, indicated the most prestigious scientific computer users were considering "remote scientific computing" – time-sharing – systems from IBM's competitors, primarily General Electric, in the summer of 1964. One of these users was MIT's Project MAC.

IBM, however, did not have a time-sharing computer in its newly announced 360 line and did not want to sit back and watch "gold chip" customers going to competitors.

A time-sharing task force was formed that had as its members 24 people knowledgeable in remote computing from all departments in the corporation. Among those mentioned in IBM memos introduced by the government were Frank T. Cary, T. Vincent Learson and Gene Amdahl. Amdahl was a designer of the 360 system.

By the fall of 1964, IBM had decided to develop a machine that would draw substantially from the 360 line, but would include time-sharing features. This machine was originally intended as a special solution for Lincoln Laboratories, but a determination was made that the machine would be offered as IBM's time-sharing product, the memos indicated.

In the spring of 1965, IBM still planned to keep the machine on a limited or special bidding basis. Programming problems were being encountered and funds were lacking for this project.

One member of top management indicated the product was being designed according to requirements coming from outside of IBM and therefore lacked the corporation's normal control over its products, according to one memo.

A speech given March 4, 1965 to Share, the IBM user group, made the time-sharing machine an even more public – though still unannounced – IBM offering. The machine remained in this quasi-announced state until August.

Concern About Promises

Promises made, particularly in regard to delivery dates, were a cause of concern among top management in the months both preceeding and following the Model 67 announcement, the documents indicated.

Deliveries were scheduled to begin in July 1966, but memos written only a few months earlier showed the 67's programming division was understaffed and management was anticipating no less than four months' slippage in delivery dates.

Although there was some optimism within the company concerning the Time Sharing System (TSS) software being developed for the 67, rumblings of dissatisfaction were coming from other quarters within IBM.

"DP is requesting from the Products Division such complex systems that [it gets] all bogged down. Selling becomes easier for DP when [it] can promise the moon," a memo said, pointing out that the firm should instead offer " 'poor man's' time-sharing system as our competitors are, and slug it out with them in the marketplace."

Complaints were coming from customers, too, the documents showed. David Nickerson, director of Carnegie Tech's Computation Center, for example, complained design was poor and delivery late.

"Now you send us this memorandum which withdraws all warranties on what you are doing. How am I to interpret such a letter? You don't know if it will work, you don't know what its performance will be and you don't guarantee compatibility. What do you guarantee?"

IBM began to sense a "groundswell" against the system from the prominant users to whom it had already committed the 67, and managers estimated at least 50% of its accounts were looking at the competition.

Controlled Marketing Strategy

IBM decided to follow a strategy of controlled marketing for

(Continued on Page 15)

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Credit Cards Used in EFT Service

Customers of Ten Banks Now Paying Bills by Phone

By Toni Wiseman
Of the CW Staff

SEATTLE – People in Minneapolis, Pittsburgh, Des Moines and Seattle are writing fewer checks as a result of an electronic funds transfer (EFT) system which allows consumers to pay their monthly bills when they want, in the amount they want, by telephone.

Pay-by-Phone, a turnkey system supplied by Telephone Computing Service, Inc. (TCS), allows customers of participating banks to make credit-card payments from special interest-bearing accounts.

The package is configured in different sizes depending on the institution and its environment, according to TCS' director of marketing, William E. Koenig.

Ten banks are currently using the package; two more will begin operations next month, and an additional 40 are under contract, he said. This represents more than 13,000 merchants' credit cards in seven states including New York, Connecticut, Massachusetts, Minnesota, Pennsylvania, Iowa and Washington.

Typical System

The typical Pay-by-Phone system uses the home push-button telephone to initiate an EFT through a minicomputer equipped with voice response. The unit asks the customer for his account number, secret code, the name of the firm he wishes to pay and the amount.

Each of these items is verified by voice response with the customer, who can then make any changes or continue to make additional payments. Customers can obtain a subtotal of payments at any time, as well as their current bank balance.

Pay-by-Phone customers can also use rotary dial telephones and direct a teller to enter the transaction data into the computer through an on-line terminal, Koenig noted.

Security Guaranteed

Even with a human operator, the security of the system is guaranteed, Koenig said; every transaction is tagged with the operator's identification number so there is a clear audit trail of both who called and who handled the transaction.

"Even if tellers were to access a customer's account by knowing the account numbers and secret codes, all they could do would be to transfer money to one of the merchants' accounts," he added. "They couldn't extract any money from the system."

Each day, all of the transactions from the previous 24 hours are processed and checked for correct merchant codes, account holds and sufficient funds. Customer accounts are debited for the amount of all transactions; all of the payments to an individual merchant are totaled and a single check is printed.

Alternatively, the merchant can have the amount deposited in an account and receive a deposit slip.

A report is printed for the merchant listing the name, address, account number and payment amount for each customer who directed payment.

The banks which have installed the system to date have used a mainframe computer to do the batch processing and to interface with the CRTs, Koenig said. TCS has installed a mini for the voice response part of the system.

In the future, a mini will handle both collection by CRT and voice response as well as perform all batch processing and interface with the bank's mainframe.

The voice response unit is from Wavetek, he said, while the CRTs, disk system, printer and mini (ranging from a Datasystem 310 to a PDP-11/34) are from Digital Equipment Corp.

While customers are charged 10 cents per transaction, they save on postage and the EFT system is much more convenient than writing checks, Koenig said. "And, typically, they are able to earn interest on the money up until the time of payment," he added.

Small Bank System

For smaller financial institutions, the Pay-by-Phone package does not use voice response. Instead, all calls go through a teller who first writes everything down on paper and then debits the account via an existing terminal or whatever other device the bank uses.

At that point, the data enters a very small minicomputer which generates the same reports as the larger systems, he said.

In large configurations, the bank has the option of voice response and a second option of having the data formatted onto tape before the customer's account is debited on the mainframe. The various configurations handle 4,000 to 200,000 customers, Koenig said.

FEA Analyzing Home Energy Use In Mass., N.M. Pilot Studies

WASHINGTON, D.C. – The Federal Energy Administration (FEA) is offering homeowners in Massachusetts and New Mexico a computerized analysis of their home energy use and specific recommendations of ways to save energy.

Under "Project Conserve," the homeowner completes a questionnaire comprised of 29 questions and in return receives a free analysis of his home's energy use, heating bills, cooling bills and thermal characteristics. Suggestions for improvement are based on local utility and construction costs, according to the FEA.

State characteristics such as extremes of temperature and a large number of single-family homes were important factors in the selection of Massachusetts and New Mexico for the pilot study.

The questionnaires are coded and data is then keypunched by a service bureau. The information, along with cost data collected by Zip Code, is processed on the FEA's IBM 370/168 and a printout is returned to the homeowner.

To date, 107,500 Massachusetts homeowners have participated in the program. FEA officials expect homeowners following the recommendations of "Project Conserve" to cut their total energy consumption by 15% to 30%.

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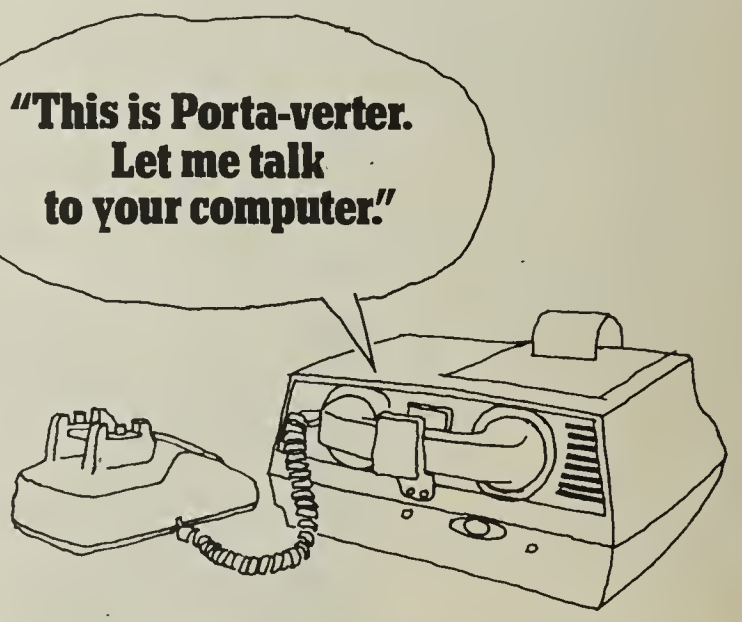

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Federal Reserve Rules Credit Reporters Must Set Up Separate Files for Spouse

By Edith Holmes
Of the CW Staff

WASHINGTON, D.C. – Credit-reporting agencies must be able to separately report the credit histories of husbands and wives when they share data after June 1, 1977, the Federal Reserve System's Board of Governors has decided.

From that date on, the agencies will be required to set up separate files under wives' names; duplicate files of past credit information will not be required.

Since the reporting requirements of Section 202.6 of the regulation implementing the Equal Credit Opportunity Act have been uncertain for the last several months, the board also extended the deadline for compliance from next Nov. 1 to the 1977 date.

This should give DP departments time to revise their files and recordkeeping systems, a Federal Reserve spokeswoman explained.

The board had previously considered an amendment to Section 202.6 which would have permitted creditors to report credit information about a married couple only once "in a manner reflecting the participation of both spouses."

In offering the amendment, the board was concerned the separate files proposed for married women under the regulation as it now stands might be incomplete, she said. The board also feared it would be both costly and technologically difficult for credit reporters to access one file under two names, she added.

The board proposed this amendment late last spring and invited comment from the industry. Responses from the credit industry and the board's own study convinced the Federal Reserve the technological problems envisioned did not exist, according to Nathaniel E. Butler, an attorney with the Federal Reserve Board.

However, the costs of revising all the records of shared accounts to conform with the amendment were found to be prohibitive, Butler stated.

Women's Rights Not Issue

At no time were the rights of women to establish credit records at issue, the board claimed.

Section 202.6 was specifically designed to remove the obstacles many women – particularly those who are divorced or widowed – have encountered in attempting to obtain credit; it was intended to enable married women to develop a credit history, the spokeswoman said.

Traditionally, creditors reported information relating to the accounts of married couples in the husband's name only. Only the husband accumulated a credit history, she explained.

Apart from shared accounts, a woman who is creditworthy in her own right will be able to establish her own separate file accessible through the use of her name alone by opening individual accounts, the spokeswoman noted.

This same provision was provided for in the now-defeated amendment, she added.

Kit Maker Says 'Do-It-Yourself' DP Not Exclusively for Hobbyist

BERKELEY, Calif. – The age of the "do-it-yourself" computer for general business and home use is already here, a pioneer in the computer kit industry said recently.

"The nonprofessional computer user doesn't have to wait until 1980 or beyond to have his very own computer. That time is here and now," according to Pete Roberts, president of Computer Kits, Inc. here.

Roberts was responding to comments made at the recent Urban and Regional Information Association (Urisa '76) conference in Atlanta about the need for less complicated computers and systems.

Computer kits are not the exclusive province of hobbyists, Roberts said. "There are plenty of business and home systems already available in kit form, and additional software is being developed for the small computers currently on the market," he pointed out.

Suggesting larger computers and their manufacturers are working on "an older idea," Roberts said "it's unrealistic to expect them to have changed [to the smaller computer idea] any sooner."

The trend toward the small computer is here, however, and manufacturers are beginning to produce small business computers to replace the larger computers which require several people to operate them, he added.

"Every business already has a use for a computer," Roberts said, adding the cost of systems for non-DPers makes it practical for every business, and even every home, to have a functional computer today.

A system built from a kit gives the owner a capital asset that requires only a one-time cost ranging from $2,000 to $8,000. It eliminates the costs required for phone calls to plug into a time-sharing system and there is no usage cost, he explained.

The cost of such a system is probably less than a year's rental on a time-sharing system, and the individual has the advantages of ownership, Roberts said.

The technology already exists in top-quality kits for almost every conceivable business application and some kit vendors are available for programming and analysis consultation, he said.

Firms using computers built from kits include real estate agents, options brokers, schools and small businesses, he noted.

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Handbook Discusses LEAA Privacy Rules

SAN JOSE, Calif. – Theorem Corp. has published a handbook on how to interpret and implement the Law Enforcement Assistance Administration's (LEAA) privacy and security regulations.

Divided into five chapters, the handbook addresses rules for disseminating records, discusses information quality and includes information on purging and sealing techniques. It also contains a section on security methods.

The manual costs $4.90 from Theorem at Suite 590, 1737 N. First Street, San Jose, Calif. 95112.

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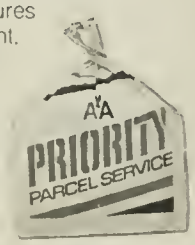

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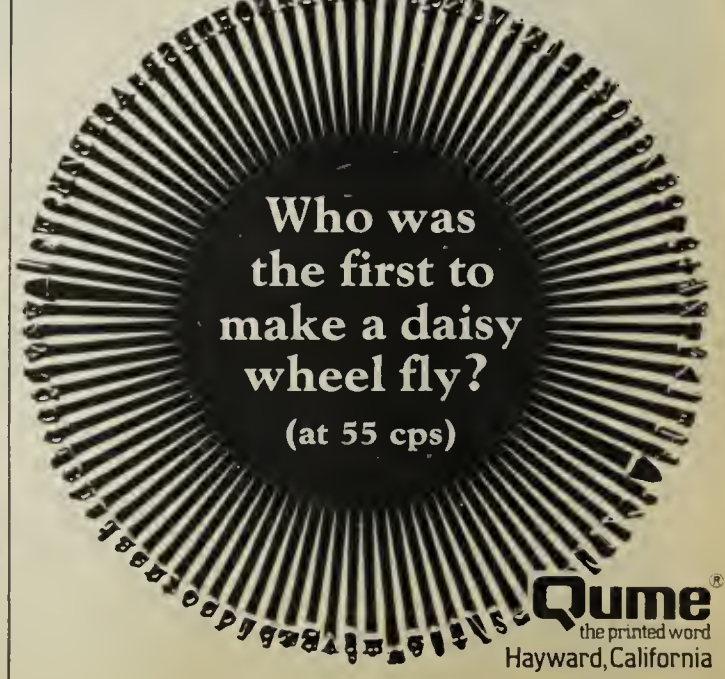

Add-On to Inventory System

Pharmacies Print Bilingual Drug Labels

By Nancy French
Of the CW Staff

LOS ANGELES – Labels printed by computer in both Spanish and English are helping the Los Angeles University of Southern California (USC) Medical Center here ensure that Spanish-speaking patients can understand the directions on prescription bottles.

Almost half of the one million prescriptions filled annually at the county's five pharmacies go to patients who speak Spanish primarily or, in many cases, exclusively, according to Robert Best, county DP director.

Information printed on each label is standard for each drug. It informs the patient how often to take the drug and warns against misuse.

When a patient presents a prescription at a county pharmacy, a clerk enters it into an IBM 370/158 computer via an IBM 3277 CRT terminal while the pharmacist starts filling it.

The computer activates an IBM 3284 printer in the appropriate pharmacy; the printer produces the label in either English alone or English and Spanish, according to Best.

At the same time the system prints a label, it checks the patient's file number, placed on each prescription by the doctor, to assure the prescribed drug will not react adversely with other drugs the patient may be taking.

"There are about 30 drugs which interact negatively with each other," Dr. Robert Maronde explained. Maronde heads the clinical pharmacology department at USC's School of Medicine.

If the new prescription could cause a problem for the patient, the pharmacist can contact the doctor for additional instructions, he added.

As each prescription is filled, the system updates the inventory. When inventories reach preset levels, varying with different types of drugs, the computer automatically prints an order for more supplies from the county's central pharmacy.

A clerk at the Los Angeles County Medical Center enters prescription information into the county's mainframe via terminal. The computer then can order a label for the prescription printed in both English and Spanish.

The computer is programmed to analyze each order point so if doctors stop prescribing certain drugs, the system will lower the reorder levels for them, Best noted.

The bilingual printing capability was a very inexpensive add-on to an already existing inventory control system, according to Bob Zurbrigen, chief of health care systems for the Los Angeles County DP Department.

"All we had to do was add another table that translated the English instructions into Spanish" at a cost of less than $500, Zurbrigen said.

IBM Rushed 360/67 to T/S Market To Head Off Competitors: Justice

(Continued from Page 11)

the 67, with all proposals requiring the approval of regional management prior to submission to a customer, the documents showed. It decided no additional functions for Release 2 of the TSS would be announced although they had been promised to customers and all follow-on functions of Release 1 would be withdrawn.

This announcement resulted in a reaction of "bitter disappointment" from Share members, the documents said.

By the spring of 1967, IBM management was predicting poor performance for the Model 67 and found "inefficiency" was the system's most serious problem. Internal memoranda indicated top management decided the March 1965 proposal for time-sharing and graphics was overly optimistic and concluded the TSS/67 would probably never be more than marginally productive.

The system was not at all productive as far as profits were concerned – the total 360/67 system showed a loss of $59.8 million while the CPU alone showed a loss of $86 million.

IBM's customer level for the 67 had reached the bottom of a bell curve; there were 107 acceptances predicted at the announcement of the system in 1965 and 170 in 1966, but that number dropped to 76 when the major decommitment of functions was made in 1967.

Still, IBM continued its commitment to the time-sharing program for fear it would lose prestige and eventually customers to its competitors, the government is contending on the basis of the documents.

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Editorial

Spreading the Wealth

The U.S. government has a seemingly endless number of federal grant programs available to state and local agencies to provide financial assistance in specific areas.

These grant programs, their available funds and the necessary prerequisites required to qualify for assistance would seem to lend themselves to a computerized data base.

Such a central file would quickly and efficiently allow potential applicants to get all the necessary information. And a data base on federal grants would help to channel these funds to the people that best qualify and, perhaps, can demonstrate the most need.

But a computerized index of federal grant information has been stalled in Washington, D.C., and even in some individual states, for a long time. Clearly, this is not a technological problem and the cost is not prohibitive.

The roadblock is apparently political in nature. Federal grant programs are designed to distribute funds to help those who otherwise would not get help. At the same time, these funds appear to be a convenient framework for helping political friends.

There are successful administrators at all levels of state and local governments who pride themselves on their ability to procure grant money. These people appear to have inside information on "free money."

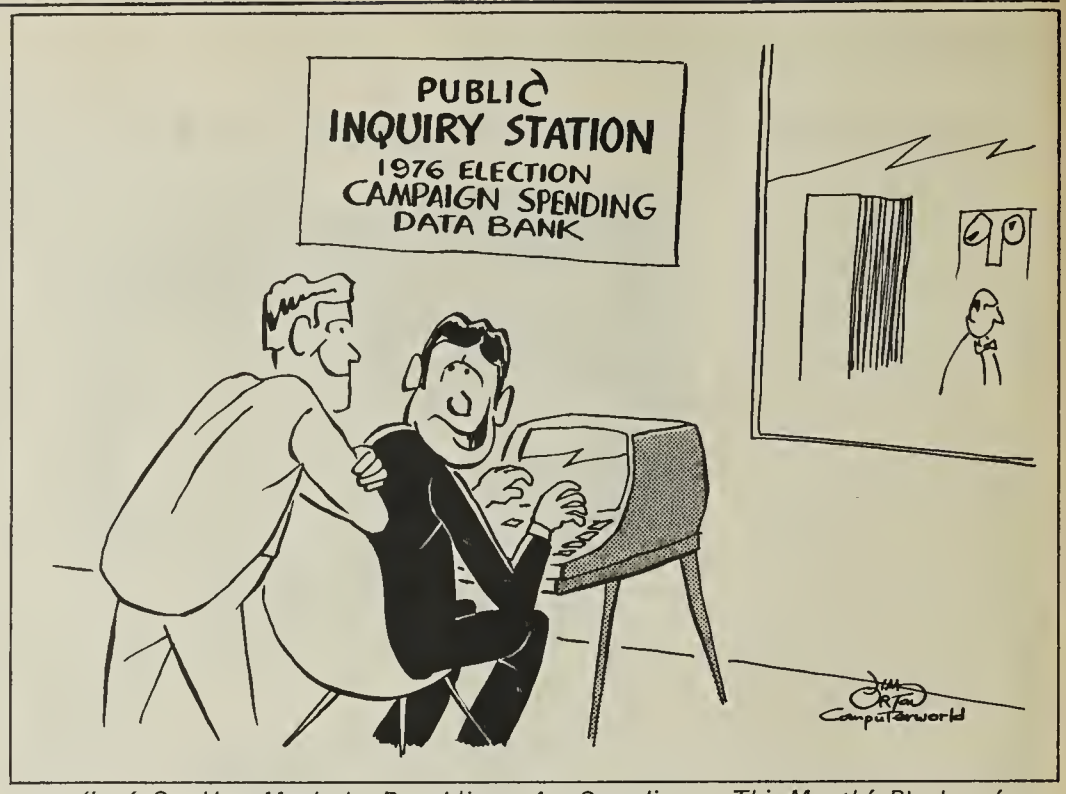
The hesitancy to centralize current grant information is undoubtedly tied to the federal purse strings which are normally available only to the select few.

The myriad of federal grant programs has literally something for everyone. It ranges through an enormous list of disciplines including such areas as wastewater treatment, law enforcement and regional planning.

These grant programs are designed to help anyone who can qualify. Information on these programs should not be coveted and carefully parceled out by agencies and politicians to selected beneficiaries.

A computerized data base of grant information is long overdue. It might eliminate some close political ties, but it certainly would go a long way toward making federal grant programs operate efficiently and objectively.

A data base available for access by all applicants might even allow some of these programs to be administered in a manner that would meet the lofty ideals expressed in the legislation that created them.



'Let's See How Much the Republicans Are Spending on This Month's Playboy.*'*

Letters to the Editor

CDP Rating Doesn't Rate For Preferential Treatment

James M. Brown's complaint that "CDP" was not printed after his name [CW, Sept. 27] seemed a little bit ridiculous. Would he also like to have "Member of Board of Directors of ICCP," as he proudly noted, written after his name or his "BA" and "MA" or any other initials for which he happens to qualify?

Surely on your ego trip, Brown, you do not believe your "Letter to the Editor" should get more attention or your opinion should be more highly received because of your CDP rating.

The "Letters to the Editor" column serves the purpose of eliciting a response from a general audience. Though it may be hard for you to believe, some letters may come from persons with even higher qualifications than your own and these qualifications may not be listed to support their professionalism.

Finally, it is not for you to say that a person shining shoes fails to take pride in his work because he lacks certification.

I'll simply sign my name.

Robert J. McGriff

Chicago, Ill.

Another Way to Get a Safe Seat

According to Alan Taylor, "... the rate of increase of secondary no-shows is currently increasing faster than genuine no-shows" [CW, Sept. 27]. It is no wonder.

While discussing methods A and B is necessary for an understanding of the problem, the box and caption can only be interpreted as an attempt by Taylor to aggravate the problem. Why doesn't he mention Method C which will substitute for Method A every time?

Simply make reservations on the second flight and stand by on the earlier flight. Then if you are not seated on the earlier flight, you can check in early enough on the second flight to avoid being bumped.

Cost: passenger time, but zero additional no-shows.

John S. Wylie

Philadelphia, Pa.

Benson's Defense Supports His Pet

My defense of a language is based on a sound and comprehensive analysis of the advantages of the language and its applications. Miles Benson's defense of a language [CW, Sept. 27] is just to support his "pet" (i.e., a language for which he feels affection, but which doesn't produce anything of value).

The original Benson article [Aug. 23] maligning "Snobol 68" was a mistake no matter which way you look at it. It was either an incorrect assessment of the Snobol language and its descendents or it was an extremely inept use of a pseudonym very close to the name of an existing language.

Are the readers of *Computerworld* to assume that when names of languages (or computers, etc.) are given in the articles that we are only being invited to play a guessing game as to what the article really is about? And then, when a reader writes in to find out if the "IBM 1108" discussed is really made by Univac, the response would be, "No, guess again."

We, the readers, are entitled to a retraction and correction for both the original article and the follow-up.

Henry E. Schaffer

Raleigh, N.C.

(Other letters on Page 18.)

Data Past

Five Years Ago
Oct. 13, 1971

WHITE PLAINS, N.Y. – Two major equipment problems were removed when IBM extended magnetic tape capabilities to the 3/10 and added the 96-column card to smaller models of the 360 and 370 series.

The 3410 system provided a tape capability to the 3/10 and added a slow tape system to the 360 and 370 series. The system mounted standard tape reels horizontally, instead of vertically, and eliminated the need for a separate controller by incorporating control circuitry into the 3411 drive unit.

– – –

NEW YORK – Robert V. Jacobsen, president of Bradford Security Systems, contended that a computer user's ability to recover from a fire depended on the building and not the hardware, thereby necessitating extensive fire protection programs. Jacobsen prescribed a five-step protection plan for a computer facility including prevention, detection, personnel evacuation, fire fighting and loss control.

Eight Years Ago
Oct. 9, 1968

WASHINGTON, D.C. – An investigative report for the U.S. Air Force by Logican, Inc. showed that while PL/1 programs took less time to code, they took longer to check out because of programming errors. Compared to Cobol and Fortran, PL/I was found to be prone to error, unsuitable for use by the nonprofessional programmer and harder to learn.

A Pungent Panel

There was a very pleasant but lightly attended regional meeting in Denver last month, at the Cosmopolitan Hotel. I was in town for an ACM chapter chairmen's meeting, and was asked to join as *agent provocateur* with a panel of four very serious guys concerned about EFT, Electronic Funds Transfer. Two were locals, as was the moderator; one of the two spoke for the retail merchant viewpoint, but with every appearance of concern for consumer values also. The other was from the largest bank; Colorado does not permit branch banking, so sizes are small and competitors numerous. Then there was the head of the ACM ombudsman function, and a bank examiner from the Payment Systems Branch of the Comptroller of the Currency, back East. No black hats, but plenty of disagreement.

What we all appreciated was the vigorous audience participation. There was at least one young man to the left of *me*, which is unusual in a computer meeting, and then a continuum all the way to an Ayn Rander. Naturally, there had to be some fairly heavy language, and some struggling for the floor, but really it all went amazingly well.

The basic argument revolved around economics. Not economics versus personal freedoms; indeed, we started out that way, but before we had more than touched on the encryption algorithm, and whether to trust IBM more or less than NSA, most of us swung around to basic money.

One thesis was that the interest that could be earned on the "float," if it was de-floated, was what the bankers wanted. But then the fact that the float works both ways came up. I started by championing the idea that the disposable resources of society were slow to expand, and in fact might now be contracting; that technical tricks like EFTS, or computers broadly, or the whole credit phantasmagoria, are just sneaky ways of real-locating that wealth – take it from the truck farmer, give it to the chip designer!

That didn't fly too nicely either, at least partly because the audience didn't want to feel greedy. Victims, fine; disinterested programmers, hum! But not the beneficiaries of such dubious deployments. We then bounced off to the cost of credit, and with minor excursions to the technical problems of identification at cash dispensers, stayed there the rest of the morning.

Two major points were made. One was that the whole apparatus of credit was hellishly wasteful; that the pile of real goods and pleasures to be whacked up would be much larger if the banks and credit unions and S&L's and credit cards and skip tracers and verification networks and EFT technology didn't exist, and the people milling around therein went out and grew potatoes or wrote science fiction. We all agreed it was too late; that we were stuck with currency, checks and electronic money, and couldn't go back.

Then came the second point: if credit, if goods-in-advance, if car leasing and Ticketron are inevitable, should we not as technicians design, and as consumers demand, smooth unobtrusive elegant credit? Should we not spend resources to make credit available everywhere, instantaneously, and without humiliating interrogations? Should we not expect prices to rise to cover defalcations and bankruptcies and slow payers, and expensive EFT methodology? Or should we tighten up, pay premiums to good risks and cash buyers? In general, the audience was nervous about being trapped, wanted somebody to look hard at the proposals on their behalf, wanted to be persuaded. They did not seem, at least in Denver, to think that it was too late, that the die was cast. Reference was made to the slow acceptance of the grocery code: automated supermarket checkout.

The audience was full of insiders, men and women actually at work with data banks and credit handling. Yet clearly the majority wanted to go slower. Two panelists boasted of diversity – that there could be dozens of EFT systems, that humans could live in the crevices between. I said no, drew a comparison with the need for a single voice-communications net: Ma Bell. But I didn't make anyone happy. Keep it small, go slow, watch for crime and greed – that was the message.

Herb Grosch

Now's the Time to Get Ready for 1977 CDP Exam

The Taylor Report
By
Alan Taylor, CDP

It's that time again when letters start coming in inquiring about the Certificate of Data Processing (CDP) exam – what it is, how to take it, etc. This year is no exception, except the letters seem to be coming in a bit sooner than before.

In the past, the letters were a somewhat bittersweet experience because while the move from the Data Processing Management Association (DPMA)-controlled old CDP organization to the more widely backed Institute for Certification of Computer Professionals (ICCP) was going forward the examination itself and the key data for the intended recipient were still comprised in a rather obsolete study guide.

This year it is different – the study guide has been updated. The books referenced are much more up-to-date (including new ones like the Association of Systems Management's recent *Business Systems* [Willoughby & Senn] and the Canadian Institute of Charted Accountants' *Computer Audit Guidelines*, both published in 1975). In respect to date, contents and range, the new listings are very much better than the old one. Good work, someone.

Old Problem Lingers

The other old problem still survives with the guide, but I think I've found the method of answering the CDP sample questions that are published and which have always given me trouble in past issues of the guide (See box). First, however, let's examine the examination itself.

The exam has five sections, lasts for 250 minutes and is open to anyone interested in taking it. (You can't actually get the CDP without 60 months of experience, including time off for academic credit, but you can take the exam and should prepare for it). Each section contains 60 multiple-choice questions and all sections are given on the same day.

The exam will be given on Saturday, Feb. 19, 1977. Alternative arrangements for the exam to be taken on Sunday, Feb. 20, are possible for religious reasons.

The cost of the examination varies from $45 for those taking a single section to $85 for those taking the full examination. The application for the registration form should be completed as soon as possible, but not later than Dec. 15. This should be sent to the ICCP, 304 E. 45th St., New York, N.Y. 10017.

The sections of the exam include:

- *Data Processing Equipment.* A standard "what is the hardware we work with" approach to fundamentals, this section should give few problems to the serious computer professional, although much may come as a surprise to many application programmers or systems analysts who work in restricted environments.
- *Computer Programming and Software.* Cobol is the focus here and structured programming takes its place along with the old favorites of programming basics – looping, macros, dumps, etc. However, non-Cobol understanding of interactive simulation, list processing and other languages is required. As with the section on equipment, narrow specialist knowledge, one of the problems of the industry, just will not be sufficient to satisfy the CDP requirements.
- *Principles of Management.* This section is divided into DP and general management and brings out the essential differences between running a DP shop and jumping into the management of a profit-oriented business.

The contrast between the two certainly sharpens the understanding of these two ways of life and is helpful whether or not the DPer makes the jump. In fact, understanding of the realities and parameters of business is probably a prerequisite for performing a successful systems analysis (which may be why many such analyses look good, but don't work).

- *Quantitative Methods.* This is an uneasy mixture of accounting and mathematics, linear programming, operations research and statistics. Hopefully, someday this will be unpacked into its separate sections. Auditing, for instance, is simply unrelated to time series analysis, even though a good auditor may want to use the technique sometimes. But both subjects are certainly relevant to the certificate. Make the best of it.
- *Systems Analysis and Design.* This is my favorite section, a six-part section dealing with the systems analysis of life cycle and control methods. This brings into focus the uses of the information shown in the prior sections.

If there is one section which indicates DP understanding, this is it. Even the study guide makes a good checklist of activities for any installation. You might like to see if your place really does cover the waterfront or has left something out.

So, there it is. The 1977 CDP examination schedule – the only widely backed DP certification program we have.

Answering CDP Exam Questions

1. In a microprogrammable minicomputer, the microprogram is stored
1. in core memory.
2. on magnetic tape.
3. in read-only memory.
4. on a direct access unit.

18. In a real-time control system, each logical message requires 500 milliseconds of control processor time. Each remote control device requires synchronized service 5 times per minute. Which is the best estimate of the largest number of remote control devices that can be served?
1. 10 thru 19
2. 20 thru 29
3. 30 thru 39
4. 40 thru 49

These two questions, taken from the *CDP Guide* and *1977 Announcement*, illustrate a problem with the CDP examination I have had for years. What really are the correct answers?

In question 18, for example, you can't safely get more than 24 terminals polled if they always have messages. So, if they require this frequent polling as a safety measure, the lower range would be right. But the question calls for the "largest number of remote control devices," and 10 to 19 doesn't include the largest number. It has to include 24. So?

Similarly, the placing of microprograms is not confined to read-only memory. Some are – indeed, most are. But, particularly for development work, you want to be able to change the programs and the hardware permits it. So – what is the answer? And how do you find it?

Answer – don't look for the correct one, simply disqualify the others. The one correct answer will then fall out, even if on occasion you know, or think you know, a bit more about the subject than the question permits. The answers are 1 and 2 respectively.

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Letters to The Editor

Passengers Responsible For Overbooking Problem

No, Alan Taylor, the computer is not responsible for overbooking [CW, Sept. 20, 27]. I am and so are many of my colleagues; and you probably are also. Anyone who books one flight and takes another without canceling the first is to blame.

Or perhaps you would like to blame the rather liberal airlines' policy which lets you use your ticket on a flight other than the one on which you reserved a seat.

You would probably like to blame some aspect of our technological society. The culprit, then, should be the operations research technique known as dynamic programming.

Dynamic programming is an attempt to quantify how many a "few extra" should be.

Clearly, it is not an exact science; it is based on probabilities. A flight which averages 10% no-shows might not have any no-shows on a given day.

However, the real problem is the passengers.

If I had to pay a penalty of say 20% of my fare for a no-show on the day of a flight, 15% for canceling within two days of the flight and 10% for canceling within a week of the flight, I would probably be more careful about making reservations. With a suitable penalty scheme, I would cancel reservations.

DP is legitimately blamed for enough problems in today's world. Let's not add to that list with problems which are not truly computer related.

Stephen Robinson

New York, N.Y.

Mailing Solution Offered

In reference to the editorial entitled "Nobody by That Name Here" [CW, Sept. 20], we wish to offer a positive solution to the problem of nonpersonal computer letter solicitations.

We are the developers of a software program called Name Isolation Routine (NIR), which edits and removes nonpersonal problem records such as "Mr. Accountant", "Mr. Attorney" or "Mr. Estate" from name and address files.

The major portion of our business is in the area of editing name, address, and Zip Code files for major mailers across the U.S.

James E. Pehta
Vice-President

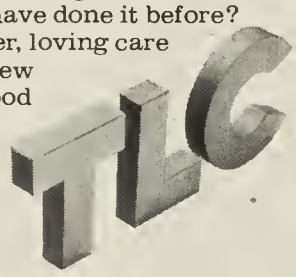
List Processing Co.
Addison, Ill.

Ten Terrifying Questions to ask a person trying to sell you a computerized personnel/payroll system

Terrifying question number one

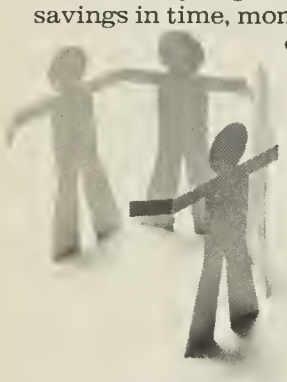
OK, so we're sold on using a system—who's going to install it? Are you equipped to do it? Can you get it up and running fast? Are experts on hand who have done it before?

Will you give us tender, loving care while you install our new system? Will we get good support after we're up-and-running?



Terrifying question number two

Will the system's value exceed its cost? Can you prove it? Exactly where will savings come from? How will costs be cut? Can you give us figures showing savings in time, money, and better use of our staff?



Terrifying question number three

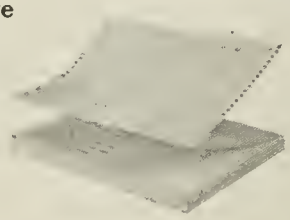
What's your track record? How many systems are actually in operation? Do your users boast about the system? Are they happy? Will they pass on the good news? Is there any good news?

Terrifying question number four

How about documentation? Will we know exactly what we've got? Is it easy to understand? Can we take the reins quickly? We need high quality training and manuals. Will you provide these?

Terrifying question number five

How about reports for EEO, ERISA, and OSHA? Can we handle those? I mean really handle them. Can we meet compliance demands quickly and inexpensively? We'd like to relax on that score.

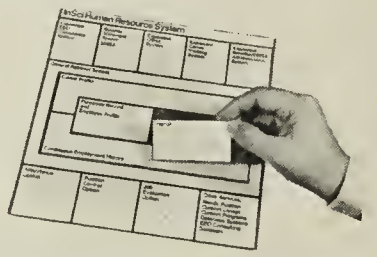


Terrifying question number six

Will it be a hassle every time we need information? Can our Personnel or Payroll Departments retrieve information without calling in a programmer? Can your retrieval system understand English?

Terrifying question number seven

How flexible is the system? Can we expand it as we grow? Will your people sit down and discuss our particular needs and tailor the system to them? How comprehensive is your Payroll system? What about manpower planning, salary and benefits administration? Or health and safety programs?



Terrifying question number eight

Can you provide a forum—seminars, and so forth—for our personnel, payroll, and data processing people? Can we talk to other users grappling with the same problems? In other words, can you help us keep in touch with the the industry?

Terrifying question number nine

If we can't use our computer, must we shelve the idea? Can we run the system on your computer? Do you have a systems service division to help us do our work? What other clients do they handle? What kind of turnaround can I expect?

Terrifying question number ten

Is your organization stable? Are you financially secure? Will you still be around five years from now if we must expand the system? Are you growing?

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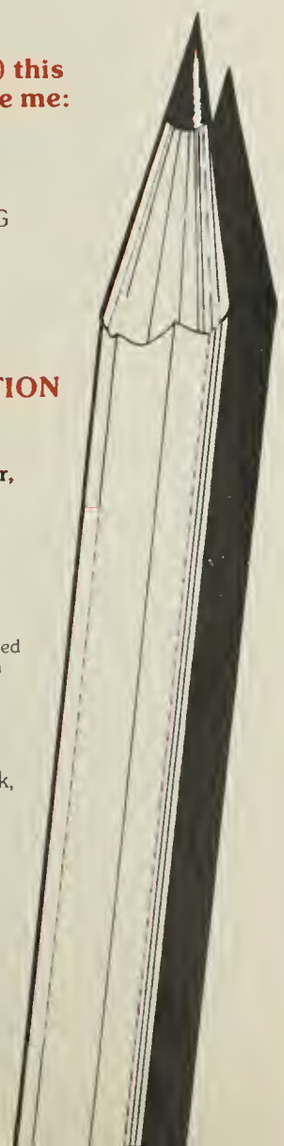

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Called Organized Common Sense:

'SADT' Imposes Methodology on Problem Definitions

By Don Leavitt
Of the CW Staff

WALTHAM, Mass. – At first appearance, the Structured Analysis and Design Technique (SADT) utilized by Softech, Inc. seems very similar to a number of other planning tools. Analysts work with charts made up of boxes with connecting arrows. And the charts are arranged in a hierarchy leading to more and more detail.

But SADT differs from the other tools in nearly as many ways, according to Softech chairman Douglas Ross, who described the methodology recently and invited any interested users to try using it on their own problems.

As its full name implies, SADT is used long before any of the programming-oriented techniques such as conventional flow charts or the IBM-backed Hierarchy plus Input, Processing, Output (Hipo) documentation approach.

Softech's technique is used first in the earliest part of an effort, by a user or analyst, to determine just what problem really exists and what approach might solve it, whether computerization is needed or not.

Along with the charts, however, is a process of review – by both the user and other interested analysts – to make sure that the system being conceptualized is indeed what the user wants and that there are no logical gaps in the design.

Each time a set of charts – or "models," to use Softech's term – is created or revised, it is copied by the author and sent to all who might wish to comment.

The reviewers are encouraged to question any part of the charts that seems unclear or wrong. They are to write their questions, in color so the author won't overlook them, directly on the latest charts and send them back to the author.

He is expected to take all reactions into account, make whatever changes seem appropriate and go back into the review cycle to where there is general agreement on the content of each model.

While "top-down" and "logical decomposition" of a problem are terms applied to both SADT and other recent approaches, the Softech method imposes physical limits on its charts to be sure the nontechnically oriented user is "comfortable" with them and the design and development staff(s) can attack the problem without fear of leaving out vital pieces.

Physically, each chart can be no longer than an 8-1/2 by 11-in piece of paper, and may contain no more than six "activity" boxes. If it takes more than six boxes to decompose one box from a higher level chart, the analyst has either gone into more detail than appropriate or the higher level chart didn't go into enough detail, Ross said.

The fact that each activity is charted into a simple box is also significant to Softech. SADT has no system of symbolic shapes, as do conventional flowcharts, which often distract or confuse the person attempting to read and evaluate the charts.

The arrows, too, are simpler than with other documentation techniques. The point at which they enter or leave an activity box is important, but the shape of the arrow is not. Input flows into the left side of the box; output leaves on the right.

External factors that control the activity are shown through arrows coming into the top of a box, and the mechanism the analyst expects to use in performing the activity is "arrowed in" from the bottom. "Last day of month" then, might be an appropriate control factor; "rubber stamp," a reasonable mechanism.

Output from one activity may become input or the controlling factor for another activity, Softech said.

The language used to identify the various activities is also kept simple under SADT, Ross said, noting that verbs are required. "Check Sales Slips" would be better – because it is clearer – than "Edit Input," he explained.

Once activities are detailed enough to identify which might benefit from use of a computer as the mechanism, and the "models" have been accepted by all reviewers, Ross seemed willing enough to allow the detail program designers to use whatever documentation system they wish.

SADT is not viewed by the developers as an alternative to any of the current "structured programming" methodologies. Rather it provides shape to the problem and the solution before programming of any sort is even considered.

Softech is at 460 Totten Pond Road, Waltham, Mass. 02154.

Roman Wall Sets Stage for Lively DP Operation

CHESTER, England – The Roman wall that surrounds this northern English city gives a sense of timelessness in contrast to the problems faced and solutions attained by the Cheshire County Council DP staff which is based here.

The council has an IBM 370/145 with 768K bytes of main memory. The operation is utilizing the Virtual Machine facility (VM/370) in order to ease the change from DOS – the environment since the days of a 360/30 in 1969-'70 – to OS/VS1.

Although confident of his staff's abilities, system engineering manager Ken Croston is not averse to using packages from outside vendors if he feels they can meet his needs better than an in-house effort.

Before VM/370 and its ability to allow concurrent users to work in both OS and DOS, the council had, for example, been using DUO (now UCC-Two) from University Computing Co. to achieve the same basic effect, Croston said.

As they got more deeply involved in the change to OS/VS1, they joined Guide, the IBM user organization, in order to be aware of what others were doing. One direct result of that move was a "face-to-face" confrontation between the Librarian from Applied Data Research and Panvalet, from Pansophic Systems.

Croston was very careful to note, repeatedly, that as hard as his staff could exercise the two products during the test period, he couldn't find any bugs or any trouble at all with either. Ultimately he chose Panvalet and has used it, after "two months of hard work" needed to load some 3,500 program modules into the source statement library.

Working deliberately, the staff is "getting organized" to put some 70,000 JCL card images on the system. And in a fairly short time Croston expects to start utilizing Panvalet/On-Line to replace IBM's CMS as a program development environment.

But program development isn't the only part of the council's operations being updated. The systems engineers are now testing their first application destined for use under Cincom System's Total data base management system.

Expected to be operational early next year, it will support both on-line and batch access to police and teachers' personnel records, Croston said.

Panvalet even has a part in the data base work, he added, noting that file layouts, record contents and CRT screen layouts could all be stored in the Panvalet library. This makes it, at least partially, a data dictionary or directory, Croston said.

In addition to the personnel systems for the police and school departments, the council also supports accounting programs for some of the district councils within the county, book ordering and other work for the public libraries and statistical runs for the highway department.

The colleges under the council's control have an on-line enrollment application which is functioning very well, according to Croston. On the other hand, a computer-assisted instruction (CAI) pilot project he tried with IBM was "not very

Croston said the entire DP staff for the council includes some 25 to 30 programmers, analysts and supervisors. These are divided into two teams for development and one, with eight people, for implementation and support – "that's a nice word for maintenance."

The 145 runs 24 hours/five days a week but programmers are not called out at night even if a system crashes. Notes are made and they work on it the next day.

Croston's group of four system engineers functions basically as a technical support group. There is a separate systems programming group of three people, he noted.

'Quick-Trol' Updated

ATLANTA – Quality Data Products, Inc. has announced the release of Version 1.2 of Quick-Trol, a project management system for the DP environment.

Quick-Trol was designed to support in-depth planning and control in the DP environment, with flexibility and ease of use as primary characteristics, the firm said. It enables managers to plan and control multiple work projects with assurance that they have complete traceability and immediate response to informational needs, Quality said.

The enhancements in Version 1.2 include an output exit to interface Quick-Trol with accounting, payroll or other systems; an execution inhibit feature to check for syntactical and data validity and to allow editing of input commands before a final production run, and a dump/restore facility that allows data base expansion at the time of the restore command.

Additional enhancements include a feature that allows automatic creation of project structures and charging authorizations, especially useful for repetitive project formats, the company noted. Special reports that define in detail the contents of the database and the efficiency and usage of the I/O areas and an expenditure verification feature are also part of Quick-Trol.

Quality Data Products can be reached through P.O. Box 76065, Atlanta, Ga. 30328.

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Tymshare's 'Focus' Includes Host Language Linkage

CUPERTINO, Calif. – Tymshare, Inc. has released a data base management system (DBMS) called Focus for the company's IBM 370-based remote computing service.

Focus combines large-scale DBMS capability for DP professionals and reporting and information analysis for the nonprogrammer, the company said. Paired with other analysis tools, Focus was designed to provide comprehensive data management and information analysis capability, according to Tymshare.

A host language interface enables DP professionals to work with programming languages such as Cobol, Fortran, PL/I and Assembler, the company said.

Query Language

Nonprogrammers can use the system's command-based query language to interactively report from and analyze information either in a Focus data base or data residing on in-house tape files. For more rigid analysis and forecasting, a user may employ Tymshare's 370 Express system in conjunction with Focus, a spokesman added.

Focus is said to bring together in one comprehensive information control system the features needed to control an entire application while reducing the need for or replacing programming where desirable.

Focus was developed for one-time reports and for repetitive production runs; once created, the command strings can be stored for later retrieval and execution, the spokesman claimed.

File maintenance as well as data extraction is supported, Tymshare noted.

Focus allows users to deal with a wide range of data structures, including multipath hierarchies and shared hierarchic networks. The user can describe data in a way that is natural and logical for his unique application requirements, the company added.

A match facility allows new relationships to be created dynamically for reporting in unforeseen situations. Focus also eliminates redundant storage since it can "virtually" create new hierarchies using data stored only once, the company said.

Tymshare is at 20705 Valley Green Drive, Cupertino, Calif. 95014.

'Minidump' Update Eases Program Debugging

ARLINGTON, Va. – Data Services Corp. of America has extended the design concept of its original Minidump – to produce a more effective output than IBM's Sysudump – and the update, called Minidump 3, is said to reduce the need for systems programming support in debugging routine application logic.

Designed to cut spool, printer and paper costs as well, Minidump 3 is a general purpose Abend processor that incorporates "intelligent" program dump coding, according to Data Services.

Under control of user-written parameter cards, the software produces a continuum of dumps, which can be selected on a completion code basis, and which range from no dump at all to a complete dump of the CPU's entire main memory.

Commenting on the earlier Minidump, the vendor noted that a program running in 150K bytes of memory will typically generate a Minidump of "just five pages, instead of some 90 pages for a Sysudump."

The package also creates a one-page report on the immediate cause of program failure and a summary of conditions at termination. This report is always produced, regardless of whether a dump is requested or provided, the firm added.

The report provides images of the abending instruction and any data referenced by it. The completion code and operation code are shown in English; for abends within an SVC, the number and function of the SVC are also given.

Significant addresses, including register values, are shown in both absolute form and as offsets into the user program.

An optional feature related to the limited dump provides a formatted display of the Data Language/1 (DL/1) CALL structure and Information Management System (IMS) control blocks, for IBM's data base management system.

Minidump 3 is available for MFT and MVT installations for $2,460. The OS/VS version costs $2,920, and the IMS debug option is an additional $940, Data Services said from 1515 Wilson Blvd., Arlington, Va. 22209.

S/3 Data Retrieval Aided by Package

WEST ORANGE, N.J. – Non-technical personnel whose organizations are using an IBM 3 can perform file audit and data retrieval functions in a "load-and-go" mode with the Sys3audit package, according to the vendor, Computer Audit Systems, Inc. (CAS).

Managed through each run by user-defined control cards, the basic Sys3audit package is capable of parameter value extraction, sequential internal extraction, multiple free format report outputs and selective report sorting, CAS said.

Calculation, sub-totaling, file footings record counts and numeric data error detection are also among its capabilities, the vendor claimed. Parameter card sorting and editing, dual file handling, bypass facilities and user exits permitting use of routines capable of doing things beyond the scope of Sys3audit, are also part of the basic package, CAS said.

Written in IBM 3 assembly language, Sys3audit requires a CPU with 16K bytes of main memory, one disk, a printer and a card reader.

The software is available under a two-year payout plan, which includes two days of installation and training support as well as on-going maintenance, CAS said from 80 Main St., West Orange, N.J. 07052.

By Cecil Wright, Assistant Director of Operations and Academic Services, Computer Services
Laurentian University
Sudbury, Ontario, Canada

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"We don't use Cobol here at all. If we did, we couldn't produce what we're producing.

"Implementation time with MARK IV is less than a third that of PL/I. Coding is faster. Debugging is faster. And on our machine – an IBM 360/40 with 256K – we get faster turnaround on tests. Moreover, we've noted a marked decrease in core requirements.

"On the academic side, we're doing things like multi-lingual technical dictionaries – a natural task for MARK IV. The text processing features are particularly useful. I plan to teach MARK IV to a number of the people who are doing research. No longer do I have to concern myself with the fact that it takes four months for a trainee to become productive in PL/I. I've brought MARK IV students to the same level in six weeks.

"MARK IV has paid for itself, and more. It's been our salvation!"

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'Exhibit' Puts OS Resource Data On CRT Screen to Help Operator

ARLINGTON, Va. – The Exhibit package from AMS Computer Center was designed to help operators in their day-to-day work and to help systems programmers in resolving "bugs" by giving immediate information about system resources while they are being used.

Exhibit provides this support by displaying the utilization of a range of system resources, updated every n seconds, on a CRT-based terminal such as IBM's 2260 or 3270. These displays include status of all active tasks, OS Job Queue or Hasp Queue summary data and status of peripheral units, AMS said.

A number of VS-oriented measurements are also available in the pre-defined items to be displayed. Beyond that, Exhibit also enables the operator to request specific details about system operations through some 50 conversational commands.

In conversational mode, the user is free to display the same type of information available in "automatic" mode. But he has access to other data as well, including: details of initiators, JCL or any job in the system, main memory allocation and I/O request information.

But the vendor also noted that Exhibit contains another set of modules designed to help the systems programmer. These modules are said to provide capabilities to abnormally terminate tasks, change the dispatching priorities of tasks and set tasks to non-dispatchable status.

The systems personnel can also use Exhibit to change disk data, allocate data sets, and list disk data, the OS catalog and other system-pertinent information, a spokesman noted.

Exhibit uses approximately one minute of CPU time per hour in normal Display mode; the average overhead does not exceed 3%, AMS claimed.

Exhibit runs under OS/MFT or MVT (release 20 or later), or OS/VS2 Release 1.7, and requires a running region or partition of 12K. The CRT used may be attached to the CPU in local mode or, if TSO is available, in remote mode.

Written in Assembler, Exhibit is distributed in source code on magnetic tape. It can be ordered for $11,500 from AMS Computer Center, 1901 Moore St., Arlington, Va. 22209.

'Roscoe' Gains T/S Option

PRINCETON, N.J. – An option to the Applied Data Research (ADR) Roscoe package allows programs to be executed interactively in time-sharing mode. RTS, the Roscoe interactive time-sharing option, is a monitor routine to aid problem solvers, ADR said.

A replacement for outside time-sharing services, RTS operates without the overhead and complexities of competitive systems, ADR said. It is specifically oriented toward VS environments and accepts applications written in Fortran, PL/I and BAL.

Roscoe is ADR's remote job entry system that provides a conversational approach to program preparation, testing and maintenance via remote terminal facilities.

The types of programs best suited to run under RTS are routines which perform statistical analysis of a set of figures, calculate interest or plot a function, a spokesman explained.

Potential users – engineers, scientists, statisticians and mathematicians – need not be conversant with Roscoe or with the workings of the computer.

Programs to run under RTS must first be debugged and tested using standard Roscoe facilities. When a clean working version is obtained, the Roscoe system manager creates a table entry describing its name, language and file requirements; link-edits the program with a time-sharing front end without modifying the original code, and then places it in the time-sharing library, from which it is available for on-line Roscoe execution.

The new RTS option is available for $7,000 over the Roscoe permanent license fee of $28,000, ADR said from the Route 206 Center, Princeton, N.J. 08540.

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ST. LOUIS, Mo. – Planners have the opportunity to review the past and preview the future of their organizations through the use of two financially-oriented services on the McDonnell Douglas Automation Co. (McAuto) teleprocessing network.

An integrated accounting system, called Autocountant, currently includes modules for general ledger, accounts receivable, sales analysis, accounts payable and fixed asset accounting, McAuto said.

A financial modeling system, called Autoplan, functions independently of Autocountant and permits the user to build a financial model by entering up to 1,500 rows and columns of data on which calculations may be made to evaluate future plans.

While acknowledging that the Autocountant modules can be used as standalone applications, the McAuto spokesman emphasized that "maximum benefit" is gained in the integrated systems mode wherein all modules share common master files.

The integrated mode cuts down sharply on the time and effort needed to enter items into the system. All entries into a receivables or payables account by a department are, for example, posted to the general ledger in both summary and detail levels and are reproduced in company- and corporation-level reports, he said.

The McAuto services provide different types of support for financial planners and accountants and those differences are reflected in the way the network charges for the support. Autocountant subscribers are charged for the number of update transactions posted to his accounts and the number of reports printed.

Autoplan costs, on the other hand, are based on the amount of computer resources used since there are no set application logic patterns under this service. Subscribers to either service get training, data entry forms, user manuals and manual updates, the spokesman noted.

McAuto can be reached through Box 516, St. Louis, Mo. 63166.

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Prison, College DP Training Courses Ignore Ethics

J. Daniel Couger On **Education**

While officials and prisoners at the federal penitentiary in Leavenworth, Kan., have vehemently denied recently published stories in the general press alleging inmates were using the prison's computer to defraud the government, few DP professionals should have been surprised by the allegations.

The stories claimed the prisoners cracked the Internal Revenue Service code that determines whose tax returns get audited.

Phony returns were filed and illegal tax refunds were received by inmates still in the penitentiary. One government source believes that a sum between $150,000 and $6 million is involved, the stories indicated.

It would appear that two major issues are involved. One concerns the lack of recognition that our profession is fraud-prone or, if recognized, the lack of corrective action.

The second issue concerns the profession's attitude about fraud. Rather than vilify, we seem more inclined to sanctify people who "break" the system.

Before you accuse me of overstatement, consider the following examples:

Dick Canning told me recently about a West Coast professor who assigns students the task of "cracking" local software security systems.

I've not talked with the professor, so I'll give him the benefit of the doubt and assume his goal is to show students the fragility of some security systems. I also assume he believes this approach a good teaching device to facilitate students' building more secure systems.

I know of other professors who attain vicarious satisfaction from their students' ability to circumvent the university software security systems. Rather than assign students the task of improving the system, one such faculty member seems much more interested in showing how much smarter his students are than the university and vendor software people.

In this particular case and, perhaps, in others, the instructor is under the misapprehension that he made them smarter.

The computer school at Leavenworth is used by selected convicts in a rehabilitation program designed to prepare them for "gainful" employment after their release from prison.

My first knowledge of such rehabilitation programs came from a request for complimentary copies of my publications seven years ago. An Arizona inmate requested the materials for use in the DP course he was taking in the prison's rehabilitation program.

That night I announced to my class it would be only a matter of time before some inmate used his computer knowledge fraudulently.

Is it a mistake to train convicts to be computer programmers? Is it not tantamount to putting a loaded gun in the hand of a proven lawbreaker? Shouldn't prisoners be trained for less fraud-vulnerable professions – like beekeeping or winemaking?

Yet, rather than identify the problem as that of an academician, I wonder if practitioners are not more guilty. Such a view is substantiated by "Letters to the Editor" over the McDonald contest last year.

Many seemed amused that DP knowledgeable students were able to develop a program to produce entries to dominate the contest prize list. These students didn't violate the "letter," but the "spirit" of the contest.

Computer lore includes many such stories and practitioners seem to revel in the telling.

Such actions indicate the ethics of our profession are questionable.

Do students acquire ethics by being assigned tasks of "breaking and entering"? Certainly, it is fun for the students to try to penetrate security systems.

Some say students are more motivated by the challenge of beating the other guy – particularly their "elders" who designed the system.

Others believe students can build ethical values as well as gain knowledge if the emphasis is placed on positive aspects – like helping to build up rather than tearing down a system.

Couger is professor of computer and management science at the University of Colorado.

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COMPUTER ASSOCIATES

Good Manager Needs More Than Technical Background

By Jack Stone
Special to Computerworld

The Human Connection

Dear Jack:

In your article, "DP Managers Must Stop Fire Fighting, Start Managing" [CW, Aug. 9], you said many things I've been saying (less eloquently) for many years. I believe it is possible to achieve the goals you outlined for the profession, but only with great effort.

Just one example: The DP manager's job needs a different external view if we have any hope of applying human dimensions to the job, in addition to strictly operational and technical ones.

As it stands now, the top managers who themselves hire and manage the DP manager don't really want anything more than superior technical talent, often very specific expertise. Technical ability is easier to measure in the hiring process and it provides greater assurance in the day-to-day operation.

The ability to work with and through people isn't even recognized as a job criterion. Maybe it has something to do with the external observation of computing as a mechanistic activity.

The effect is that those people who believe computing is a social activity and who develop leadership skills don't become DP managers.

If I seem glum, it's because I don't see us communicating to others the fact DP management is a separate profession from DP technical activities, requiring less temporal skills and more leadership style.

How can this be done?

Name withheld on request.

* * *

Dear Nameless:

Let's look at management for medium- to large-scale computer centers with the six typical functions of systems planning, systems design, applications programming, systems programming, operations and production control.

Suppose we were to replace this terminology with that which is more conventional and comprehensible to top executives familiar with the long-time established manufacturing job shop (batch processing) or continuous process (on-line processing) custom product business. Let's also identify the DP customers as internal departments.

With the new terminology, we find the DP manager is responsible for, in the same sequence, product sales, design, engineering and drafting, technical services, manufacturing and customer service.

Obviously, then, the DP manager functions as a general manager of an integrated product division, serving the needs of internal departments with high-technology custom products and services.

As such, the manager should possess the broad range of business capabilities, experience and related personality traits necessary to:

- Provide customers with high quality products and services, consistent with established goals of financial profitability.
- Participate as a member in the top level DP management committee responsible for identifying products and services, setting priorities and evaluating performance.
- Develop the planning and decision-making process for all operating functions at a policy level.
- Structure supervisory and employee selection and development programs.
- Interact with user management to ensure customer satisfaction.
- Implement effective internal and external communications programs, particularly in the light of changing conditions.
- Exercise leadership to encourage and motivate employees.
- Set the example of personal commitment, maturity, efficiency, and professionalism.
- Coordinate intradepartmental operations to maximize effectiveness and use of resources and to minimize waste.

A copy of my "Curriculum Guidelines: Operating the Computer Center as a Business Enterprise" is available by request on company letterhead and enclosing a self-addressed stamped envelope.

· Readers are invited to write to Stone, c/o Computer Education International, Inc., Suite 222, 2233 Wisconsin Ave., Washington, D.C. 20007, outlining questions, issues or situations pertinent to human relations in the DP setting.

Letters should not exceed 350 words. Writer's name will be withheld from publication, if requested, but should be included for acknowledgement purposes.

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Trio of Books Show Agreement on Good Program Style

By James Douglas
Special to Computerworld

Good programming style like structured programming is everyone's goal. But unlike structured programming which has no universally accepted definition, most people can agree on what is good programming style. There are three good books on the subject.

• Kernighan, Brian W. and Plauger, P.J., *The Elements of Programming Style*, (McGraw-Hill Book Co., New York, N.Y. 1974, 145 pages).

This is a nice little book. These two authors have taken programs from programming texts and used them to show how not to program. The programs used are inefficient, unstylish and often incorrect.

Since all these bad examples of programming were taken from programming textbooks, one would have expected better programs. The authors have been kind enough not to indicate from which books they took the bad programs.

The book uses examples in PL/1 and Fortran, but no Cobol. Each section terminates with some nice rule that can be remembered to help improve programming style.

All in all the book is quite good.

• Ledgard, Henry, *Programming Proverbs* (Hayden Book Co., Rochelle Park, N.J., 1975, 130 pages).

This book is patterned after William Strunk's *Elements of Style*, which is a good book on English style. Ledgard includes many proverbs to improve programming practices and gives examples in several languages.

In fact, he often gives the same example in four languages, which seems a little unnecessary since one can usually figure out the example without having it in one's own programming language.

Basically the book is all right, but not up to the quality of the other two.

• Van Tassel, D., *Program Style, Design, Efficiency, Debugging and Testing* (Prentice-Hall, Inc., Englewood Cliffs, N.J. 1974, 250 pages).

This book was the first book on programming style. All the common sense rules are included and examples in several languages including Cobol, PL/1 and Fortran are given.

This book has extensive exercises and references which were not included in the two previous books. Several other topics are discussed, as indicated by the title.

The book is quite good and covers a lot of territory.

Douglas is an independent programming consultant in Sausalito, Calif.

Edutronics Adds Module on Vtam

KANSAS CITY, Mo. – The flow of control and the flow of data within IBM's Virtual Telecommunications Access Method (Vtam) are highlighted in an audio/visual course module on Vtam now available from the Edutronics Group.

Vtam provides a method of communicating with terminals in a network. It allows dynamic linking of terminals with distributed processing and is "vital" to dealing with IBM's System Network Architecture (SNA) and Synchronous Data Link Control (SDLC), according to Edutronics.

The course module illustrates, through animation techniques, how two programs can be handled alternately on the same terminal and the same line or through two terminals on the same multidrop line without stopping or starting either program, the vendor added.

The course module is available in 3/4-in. video cassette, "Super 8" cassette or 16mm film formats and is supported by a study guide, a spokesman noted.

The course module is available by itself or as part of a general rental system which provides use of all Edutronics courses on a "revolving" basis.

Cost varies depending on the number of courses utilized, the firm added from 3435 Broadway, Kansas City, Mo. 64111.

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Describe Innovative Services

Independents Warn Bell Bill Threatens Their Existence

By Ronald A. Frank
Of the CW Staff

WASHINGTON, D.C. – Two of the carriers offering services not duplicated by the Bell System recently told the House Subcommittee on Communications their existence would be threatened if the AT&T-fostered Consumer Communications Reform Act of 1976 were passed.

Philip Walker

Philip Walker, vice-president and general counsel for Telenet Communications Corp., said his company is now providing packet-switched services to more than 80 customers in the U.S.

Walker traced the evolution of packet switching from its development by the Department of Defense's Advanced Research Projects Agency (Arpa). "Bell Labs did not invent packet switching," he stated.

If the Reform Act had been law in 1974 when Telenet filed an application with the Federal Communications Commission (FCC), "Telenet would have had the burden of proving to the FCC that AT&T was incapable of offering this service either now or in the future."

If Telenet could not have proved that Bell Labs would have been unable to develop a packet-switching technology, it would not be in existence today under provisions of the Bell legislation, Walker said.

A number of Telenet customers with interactive and data base applications were unable to utilize data communications in an economic manner under the conventional carrier services; packet switching made nationwide access to computers an economic reality for these users, Walker said.

"Now, three years after Telenet's initial application, AT&T is beginning to put its toe into the packet-switching waters with its introduction . . . of a service called Transaction Network Service," he noted.

"One must speculate as to whether, if ever, AT&T would have found it expedient to offer the data communications user a packet-switched service" if Telenet did not exist.

Another innovator of services was American Satellite Corp., which "demonstrated a responsiveness to the special service requirements and new service needs of private-line users," according to Emanuel Fthenakis, the firm's president.

These services to users are not "cream skimming," as AT&T claims, but rather satisfy needs which users were unable to fulfill elsewhere. Among the satellite facilities provided to users are on-premise earth stations for high-volume data communications at high transmission speeds, he said.

American Satellite entered the industry when AT&T was claiming satellite transmission was unreliable, of poor quality and suitable only as backup for existing terrestrial communications systems, but AT&T was proven wrong, Fthenakis said.

Users Seen But Not Heard Much

WASHINGTON, D.C. – Testimony from users was virtually nonexistent at the recent hearings here on the proposed AT&T-sponsored Consumer Communications Reform Act, but some informal user views were given.

Almost all the witnesses represented vendors, carriers or regulatory agencies. Two industry groups of communication users were represented by witnesses from Aeronautical Radio, Inc. and the Securities Industry Automation Corp.

Each described to the House Subcommittee on Communications how they rely on a uniform nationwide network and each hinted separate standards set up by state regulatory bodies would make it more difficult to conduct business.

Users were present at the proceedings, however, and Robert Bennis of Westinghouse and Graham Crawford of Sears Roebuck listened intently to the testimony. They were attending both as telecommunications managers for their companies and also as members of the Regulatory Liaison Committee of the International Communications Associations (ICA).

Although ICA bylaws prohibit members from giving testimony in regulatory proceedings, both users reportedly had an informal exchange of opinions with subcommittee members.

Representatives of the time-sharing group of the Association of Data Processing Service Organizations (Adapso) and the Dictaphone Corp. had been slated to testify, but neither appeared.

Variety of Products Bow on Show Floor

By John P. Hebert
Of the CW Staff

SAN DIEGO – Paradyne Corp. and International Communications Corp. (ICC) introduced data communications products on the exhibit floor of the Tele-Communications Association (TCA) conference here recently.

The show offerings included intelligent modems, intelligent multiplexers, network control systems and telephone-controlled network switches.

Paradyne introduced a microprocessor-based 4,800 bit/sec synchronous modem, the Micro-Processor 48, for operation in multipoint, point-to-point or switched environments.

The intelligent modem can digitally perform under program control all calculations for automatic adaptive equalization, line filtering, signal modulation/demodulation and data randomizing, according to a Paradyne spokesman.

It was designed to meet CCITT V.27 specifications and can therefore be utilized in both American and European networks, he said.

Paradyne also introduced the Analysis 1 multipoint network management and restoration system.

Analysis 1 is an automated system for multipoint system management; equipment such as bit error rate testers and line analyzers are replaced by this system.

The Autoscan network interrogation procedure utilized in Analysis 1 analyzes diagnostic data from every network drop on a noninterfering and continuous basis, the spokesman noted, adding all nonacceptable states are displayed on the operator console along with recommended restoration procedure.

Paradyne's Micro-Processor 48 with standard, 2,400 bit/sec fallback capability is priced at $3,000 or $105/mo on a two-year lease including maintenance. The Analysis 1 system cost depends upon user configurations. Paradyne is at 8550 Ulmerton Road, Largo, Fla. 33540.

ICC spotlighted three introductions at the show, including a microprocessor-based interactive CRT terminal, an intelligent network diagnostic controller and a minicomputer-based communications monitoring system.

The System 200 Technical Control Center Management System is a programmable, modular communications monitoring system capable of surveilling up to 16,256 locations on 16 to 24 channels.

A minimum System 200 configuration consists of a minicomputer, two disk drives with removable cartridges holding almost 5M bytes of data and a controller; a serial interface multiplexer; 30 char./sec printer; keyboard/CRT; and the Model 200 control console.

The System 200 can extend control through various levels of remote modems or data concentrators, ICC said.

ICC's related product, the System 180 network diagnostic controller, is intended for multipoint and point-to-point networks and is reportedly capable of controlling four to 16 central lines with 254

(Continued on Page 27)

CW At TCA

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DPers Seen Usurping Data Specialists' Jobs by 1980

By John P. Hebert
Of the CW Staff

SAN DIEGO – The time when there will no longer be a need for the separation between data processing and data communications is fast approaching – "it will happen in this country before 1980," in the opinion of Leland Reeder, president of Correlator Corp., a firm specializing in education of teleprocessing principles.

"DP has developed into a highly sophisticated management tool and DPers know their job. You can bet they are learning yours," Reeder warned a workshop at the recent Tele-Communications Association (TCA) conference here.

This stems from the advent of true digital communications with the development and utilization of LSI technology in the early 1970s acting as a catalyst, Reeder said.

AT&T will offer something Reeder coined "network processing" by the 1980 time frame, he predicted. This concept involves digital computerized switches to process information at the network level after input, he explained.

As an argument for network processing becoming a reality, Reeder gave his "judgmental estimates of additional Bell offerings in response to IBM's Satellite Business Systems [SBS] joint venture and IBM's full-scale entry into the minicomputer arena."

In the 1977 time frame, SBS will come out with digital transmission services and, by 1977 or 1978, IBM itself will offer a digitized facsimile unit, he said.

CW At TCA

Further predictions of DP inroads into the telecommunications and teleprocessing areas included a Bell System response to IBM's actions with a competitive entry into the teleprocessing field in 1978.

In 1979, Reeder noted, SBS will initiate digital satellite transmission services. "SBS will offer totally integrated teleprocessing switches. These switches will provide digitized voice and data communications and serve as message switchers," he forecast.

In addition, he said, voice communications switches will vanish and be replaced by teleprocessing switches – a move which will act as a link in the chain of events to eliminate the communications function with the subsequent offering of the network processing concept by 1980.

"This will change our teleprocessing function. Where will we fit then?" he asked.

"DP will dictate all directions of teleprocessing. Teleprocessing people will assume a clerical function" when the concept of network processing is instituted, he answered.

DP personnel "are prepared to do our jobs, but there is a way out – a way we can balance the scales.

"It's up to you, and it all depends on education," Reeder told the audience.

Variety of Products Bow at TCA Exhibit

(Continued from Page 26)

remote devices per line.

The System 180 performs fault isolation in ICC modem networks equipped with a special multipoint test and control feature, the spokesman noted.

A basic four-line configuration costs $4,900; central office 16-line system is priced at $7,900.

In addition, ICC brought out the System 400 display terminal compatible with IBM 3275 and 2265 protocols as well as Univac's Uniscope 100/200 and UTS 400 and Honeywell VIP 7700 protocols.

An ICC spokesman said it was basically a Model 40+ terminal with a different microprocessor and control logic. The System 400 operates under synchronous or asynchronous line disciplines at speeds up to 9,600 bit/sec, has a removable keyboard and can be coupled with buffered and addressable printers capable of speeds up to 275 char./sec, ICC said.

The System 400 price is protocol-dependent and ranges from $4,200 to $5,800.

General Datacomm Industries, Inc. demonstrated the Netcom-5 network diagnostic control system designed for central system control and monitoring of all remote subscriber stations in a polling network.

The system can be utilized in any multipoint system utilizing Bell 201, 202 or 208 types of modems, the vendor said.

The microprocessor-oriented system allows on-line tests and is said to be data-transparent and insensitive to code, speed or protocol of the main data stream.

The system costs $7,500 for equipment necessary at the central site and $750 for each remote site. General Datacomm is headquartered at 131 Danbury Road, Wilton, Conn. 06897.

T-Bar, Inc. of Wilton, Conn., unveiled Touch-Tone types of telephone-controlled switches designed for unattended remote teleprocessing. Switch functions currently available include analog transfer, analog loopback, antistreaming, modem transfer, digital loopback and terminal transfer, T-Bar said.

The switches cost from $1,385 for an antistreaming switch to $2,140 for a multiple switch unit.

A product similar to the T-Bar switches was introduced by Dynatech Laboratories, Inc.'s Cooke Engineering Division in Alexandria, Va.

Dynatech's dial-up accessed fallback switcher also operates remotely from any Tone-type telephone. It provides fallback switching of the RS-232 digital interface on an individual or group channel basis, according to a Dynatech spokesman.

The Dynatech fallback switcher with one-digit security code, auto disconnect and eight-channel capability costs $2,700; a 16-channel switch is priced at $3,400.

Infotron Systems Corp. brought out the Timeline 780 Supermux, an intelligent time division multiplexer that Infotron claimed retransmits when it detects errors.

The 780 can transmit at speeds up to 19.2 kbit/sec, he said, adding it costs $2,700 to upgrade to the 780 from a Timeline 180 or 240 or $4,300 for the capability excluding channel adapters and interfaces, which cost an additional $150 each for up to 18 channels.

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For Survival of Free Enterprise

Communications People Warned to Get Into Politics

By John P. Hebert
Of the CW Staff

SAN DIEGO – "People in business and especially in the communications industry must become more involved in politics if our system of free enterprise is to survive the next century," R. Parker Sullivan, president of General Telephone and Electronics, warned communications experts here last week.

"If it became necessary to select a word that most accurately describes communications today, I'd pick 'change,'" Sullivan said in a Tele-Communications Association conference keynote address entitled "The Second Hundred Years."

Turning almost immediately to the theme of government regulation, Sullivan used the Consumer Communications Reform Act of 1976 as an example "of the kind of basic change we are all facing in telecommunications.

"There are a growing number of regulatory decisions that are challenging the concept of undivided service from telephone companies. These decisions have forced change on you users," he said.

After assuring his audience he was not going to make a pitch for the Reform Act, Sullivan said he "simply believes we are going down a path which is marked by such names as Carterfone, MCI, the [Federal Communications Commission (FCC)] and others which, in my opinion, led to a contrived form of competition and to a fragmentation of the responsibility to provide telephone service."

There were a growing number of regulatory decisions made by the FCC – such as the open entry policy – which challenged the concept of undivided service from the telephone companies, he said.

"We do not fear competition. We do believe that whatever the competitive situation, it should be fair and equitable,"

CW At TCA

as set forth in a responsible decision by the FCC.

"We have the responsibility to point out what, in our opinion, will be the adverse effects the FCC decisions will have on the quality of telecommunications service rendered nationally and on the price residential and business users of basic telephone service will have to pay for that service," he continued.

"For us to acquiesce quietly to the FCC's method of experimentation at the moment" is akin to suicide, according to Sullivan, who reportedly is active in the U.S. Independent Telephone Association and other industry groups.

Sullivan completed the thought with a warning to attendees that the communications industry is rapidly becoming a victim of "stifling regulation" – the same kind of regulation that put the railroads out of business.

"The chaos that has been created by the FCC is of major concern today," he continued, adding the entries by common carriers into the communications marketplace are fine if they don't drive the cost of communications prohibitively high, especially for the American people.

"We in business have to get involved in politics because our economics and political systems are under attack," he reiterated.

Sullivan summed up a view toward the second hundred years of electronic communications as being a panorama of danger signals. He cited figures which showed the federal tax receipt over the past few years to have increased two-thirds faster than individual income because of government overspending.

"We are in the communications business and now know best how to effectively participate in government on all levels, [better] than at any other time in history. Let's do it," he urged the conference audience.

Adaptor from Cetec Backs Modem Sharing

SANTA CLARA, Calif. – The DMC Division of Cetec Corp. has introduced the DMC 1001 shared modem adapter which is said to provide a method of reducing line and modem cost at multiterminal offices.

The 1001 allows up to four I/O devices to access one modem in a dedicated environment and is code- and protocol-transparent, the company said.

The adapter is priced at $225 for a two-channel system and $300 for a four-channel system.

Prices include one-year warranty coverage based on unit replacement by way of overnight depot shipment in the continental U.S. and Canada.

DMC is located at 2300 Owen St., Santa Clara, Calif. 95051.

Bankcom T/S System Supports Bank Terminals

SCHILLER PARK, Ill. – Bank Computer Network Corp. (Bankcom) has a microprocessor-based time-sharing (T/S) terminal support system which it said allows banks to support multiple automated teller machines, teller information terminals and point-of-sale devices around the clock with or without the assistance of a host mainframe.

The Insta-Share operating software is a true multitasking multiprocessor with extensive interlocking security, a spokesman claimed. It has the capacity to converse with a bank's host CPU to update its own files on a real-time basis, he added.

Insta-Share can be used as a file inquiry backup when the host CPU is down or during the night and on weekends.

Monthly leases begin at $1,000 and purchase prices start at $25,000 including disks, processors and software, Bankcom said from 10501 Delta Parkway, Schiller Park, Ill. 60176.

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TDM Features Six Channels

WILTON, Conn. – The TDM 1203 from General Datacomm Industries, Inc. is a six-channel maximum, fixed configuration time-division multiplexer (TDM) intended for remote extensions of a data network.

Primarily designed for asynchronous data channels with speeds up to 4,800 bit/sec, the device is also capable of accommodating synchronous communications from 600 bit/sec to a high-end transmission speed of 72 kbit/sec with common logic capabilities, according to a spokesman.

The character-interleaved TDM works with EAI, current loop, MIL or built-in modem channels for applications in low-density systems, he said.

The unit, which utilizes LSI technology, is said to feature automatic service restoral, TDM diagnostics, integral modems for channels and simplified maintenance.

The 1203 can be configured in multiples at a central location to provide star node operations over an unrestricted number of high-speed lines, General Datacomm claimed.

Besides the inclusion of status displays and loopback tests for common logic and high-speed stream performance, the TDM automatically detects channel alarms.

A common alert alarm signals a multiple channel outage indicating failure of equipment at either end or the failure of a transmission line.

The TDM 1203 can be utilized as a submultiplexer on a single Bell Digital Dataphone Service line where multiple lines are in use, the spokesman noted.

The TDM 1203 costs $2,000 and comes equipped with the six-channel capacity, the spokesman noted from 131 Danbury Road, Wilton, Conn. 06897.

'Kit' From Datatrol Gives Banks Way to Try Out, Start Up EFTS

HUDSON, Mass. – Datatrol, Inc. has introduced a communications-oriented electronic funds transfer system (EFTS) "kit" aimed at financial institutions.

The EFTS-32 Pilot System is an inexpensive way to install a trial or start-up communications network for check guarantee and verification, charge authorization, funds transfer and other retail and banking transactions, the vendor claimed.

Datatrol's FT-32 financial terminal is the basis of the system. The EFTS-32 includes 20 FT-32s with integrated 1,200 bit/sec modems, wipe-through card reader and personal identification number (PIN) pad; and one Datatrol RC-1500 communications concentrator/controller configured for two phone lines and connection to a host CPU, Datatrol said.

The FT-32 incorporates a 10-digit LED display, 16-button keyboard, a 12-window message indicator panel and an LSI microprocessor, according to the company.

Four Terminals Per Drop

The terminal requires only a telephone drop, the company said, noting up to four FT-32s can be clustered on one telephone drop.

Communications to the host CPU are by standard asynchronous protocols (IBM 2858/2260 and NCR 795/720) or bisynchronous protocols (IBM 3270). The Pilot System includes all asynchronous modems necessary, but does not include bisynchronous modems, according to Datatrol.

Firmware in the controller and terminals is table-driven but is said to allow options to the user. To minimize cost and implementation time, however, the application is standardized, Datatrol added.

At the conclusion of a test period, alternatives are available from Datatrol to expand the system if necessary.

The EFTS-32 Pilot System costs $30,000 for the asynchronous version and $35,000 for the bisynchronous system. Deliveries are scheduled for early next year, Datatrol said from Kane Industrial Drive, Hudson, Mass. 01749.

HP Adds Terminals For Novice Operators

PALO ALTO, Calif. – Hewlett-Packard Co. (HP) has introduced the HP 3070A and HP 3701A terminals for use in industrial and commercial applications by operators with little experience.

The HP 3070A works with HP 2100 and HP 21MX computers and the recently announced HP 1000 system. The 3071A can be used with computers of "most other manufacturers," HP said.

Both models can be tailored to the user's application, have numeric-only keypads for entering data and have 16-digit numeric displays.

The terminals have a set of keys and LED indicators that can be labled to match computer programs prepared by the user. This keyboard and prompting-light labeling technique make it easy to customize the terminals, HP said.

Up to 56 HP 3070A terminals can be connected to the HP 1000 system via a single twisted-pair cable, the company added.

The HP 3070A costs $1,308 and the HP 3071A $1,143 in quantities of 10. Deliveries will begin next month from HP at 1501 Page Mill Road, Palo Alto, Calif. 94304.

RDS Version of DEC Printer Features RS-232 Interface

TORRANCE, Calif. – Randal Data Systems (RDS) has a communications terminal version of the Digital Equipment Corp. LA180 printer.

The RDS/LA180 printer terminal features an RS-232 interface with 512- or 1K-character buffer and a polling capability for network applications, according to a spokesman.

The terminal also features block transmission and error correction capability, he said. The basic characteristics of the DEC model are unchanged.

Standard features include 180 char./sec operation, variable-length forms accommodation up to 132 columns, an upper/lower case, 128-character Ascii keyboard and 7 by 7 dot matrix.

The RDS/LA180 with RS-232 interface costs $3,735 from RDS at 365 Maple Ave., Torrance, Calif. 90503.

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CW 10/76

Criterion Users Planning Many On-Line Applications

By Esther Surden
Of the CW Staff

Present and future users of the Criterion systems from NCR Corp. are planning increased on-line applications.

The Criterion at Robertson's Factories, Inc. will help the company connect its nine manufacturing plants to its central location in Taunton, Mass., for inventory control. The firm plans to go on-line with terminals in each of the plants, according to Ibrahim Abdallah, DP manager.

All the inventory control facilities are off-line at present, he explained. Although the company believes in the philosophy of centralization, the turnaround time is slow, he said.

With the Criterion, purchased as an upgrade to a Century 200, the firm hopes to be better able to "control usage of cloth and to be in a better position to put through orders for cloth based on how trends are developing," Abdallah said.

The company manufactures draperies, curtains and bedspreads. All ordering and purchasing is centralized and, since the company must deal with the variables of styles, colors and sizes, the files are huge, another reason to upgrade to a system able to accommodate more disk storage, he said.

That and the fact that the Criterion features multiprogramming and will be a "virtual machine" able to cover the company's requirements for the next several years, sold Abdallah on the system.

"We looked at the IBM 370 and Burroughs systems, but found the Criterion will give us the equivalent to the 370 for less money," Abdallah said.

Century 'Rather Limited'

Tri-State Oil Tool Industries, Inc. is also upgrading to the Criterion from a Century, according to Dennis Brewer, DP manager of the firm. The company specializes in the rescue of drilling equipment lost or fouled in the drilling shafts of oil wells.

Faced with growth that has tripled in the last two years, the company plans to use CRTs in a real-time environment, a capability that was "rather limited on the Century system," Brewer said.

"The Criterion is much faster, it's a state-of-the-art machine and we don't really foresee outgrowing it. We can upgrade in the field from the 8550 to the 8570 without obtaining a new processor," he added.

The firm will perform all of the basic accounting functions, such as general ledger, payroll, accounts payable, sales and order entry on the system, he said.

"We plan to give people the capability of a CRT at their desks, and we will process different people's data all at the same time; right now we have a batch system and have to put the data in and send it through keypunching, and there is a lag time.

"We are going to update the files at the same time the person inputs the transaction and we hope this concept will grow into a communications system. We are starting in the office itself, but afterwards we may be able to bring communications to our about 28 outpost stores in the continental U.S."

The company plans to use Cincom Systems' Total data base management system, he added.

'Normal' for Hospital

The Criterion at St. Anthony's Hospital in Denver has 256K of memory, a 600 card/min card reader, five NCR 658 disk units, two magnetic tape systems, a 2,000 line/min printer, a communications multiplexer and several CRTs.

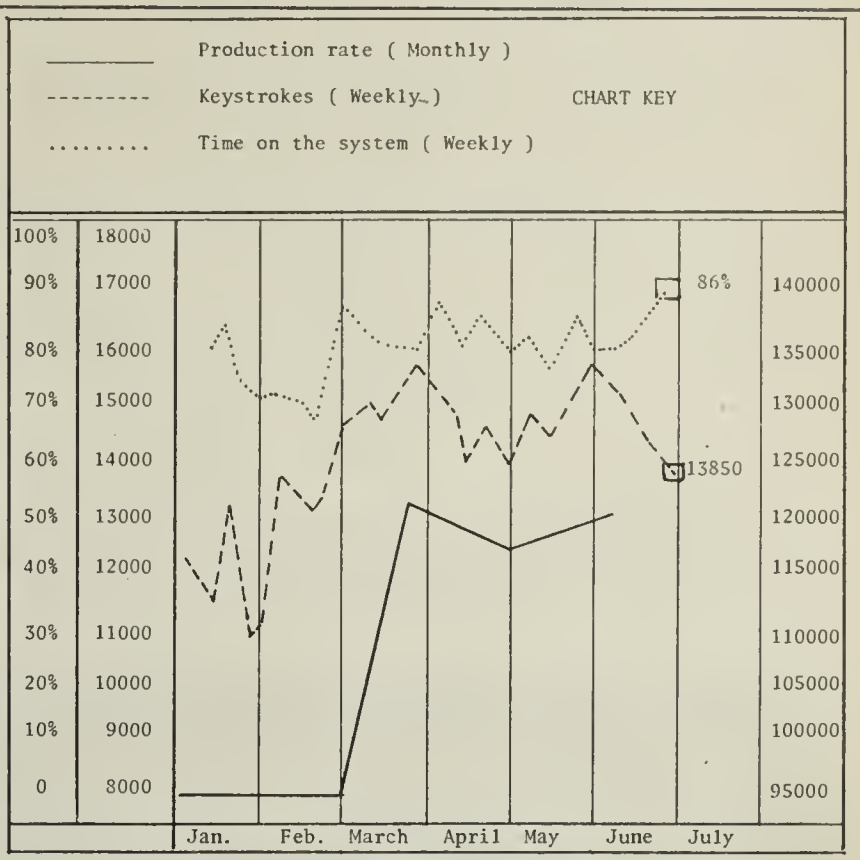
"We consider this a normal upgrade," John L. St. John said.

"One of our concerns was multiprocessing, and we looked at a configuration using the old Century for multiprocessing, but it was much more expensive than the Criterion," the director of management information systems said.

"We have experienced, in the three weeks since the system was installed, a 60% increase in throughput," he added, noting the system is still in the process of certification.

The hospital hopes to put some teleprocessing applications on the Criterion and is "looking seriously" at NCR's

(Continued on Page 32)



Plotting Performance

The *Data Entry Management Newsletter*, in an effort to provide its readers with information on determining key-to-disk operator efficiency, published the above chart submitted by Barbara White, a supervisor at New Hampshire Blue Cross.

The chart shows time on the system determined from a log clocked on the key-to-disk unit. Based on a 40-hour week, the above operator was on the system 34.4 of the 40 hours.

The 13,850 represents the operator's average strokes per hour on the system.

The production rate was determined by multiplying the keystrokes by the time on the system, which White said probably shows the more meaningful keystroke figure for comparison.

The newsletter is published by the Data Entry Management Association (see related story on Page 32.)

System Running in Three Days

'Ho Hum' Says User of Upgrade to Criterion 8550

LOS ANGELES – The first NCR Criterion 8550 user described his upgrade from the previously used NCR Century system as a "ho hum affair."

The Criterion 8550 was installed on April 5 and began processing three days later, according to Jerry Lindee, director of information systems at Dart International here.

The firm, which operates a fleet of 1,350 equipment pieces, provides distribution services including property development and management, office rentals, vehicle leasing, local deliveries, line hauling and harbor transportation, Lindee said.

The initial Dart in-house computer installation in 1971 implemented a series of distribution management and control programs developed partly by an outside software firm and partly by the information processing group set up under Lindee at that time.

Applications switched over from a service bureau included purchase order processing, freight billing, bill of lading processing, customer invoicing for distribution management services, payroll and fleet maintenance reporting.

The work was done at the outset on a 32K NCR Century 200.

This DP activity coincided with a major business expansion program that saw the company's total fleet expand from 500 to 1,350 pieces, Lindee noted.

Dart's philosophy has been to change only one system component at a time and to concentrate all of the department's limited resources on supporting each significant modification, he explained.

Since 1971, such major changes have been continually in progress at Dart.

Dart inevitably reached a point where it was "bumping the ceiling" of a Century 201's capacity and still looking for upward-compatible expandability, Lindee said. At about the same time, NCR representatives began the process of picking customer pilot sites for the Criterion.

Dart was chosen because of a combination of factors, including its expansion plans, the qualifications of Lindee and his staff and the proximity of the installation to NCR's main computer manufacturing complex at Rancho Bernardo, Calif.

The initial installation plan was simply to plug in a new mainframe and card reader, leaving all peripherals as they were, and continue with business as usual.

(Continued on Page 32)

Three guesses whose serial printers topped the Datamation Brand Preference Study in '74, '75 and '76.

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Dema Formed to Represent 'Neglected' Management

By Esther Surden
Of the CW Staff

GREENWICH, Conn. – "The computer industry has traditionally given representation to the DP manager, systems manager and systems analyst, but one level has been neglected – the data entry management," according to Norman Bodek, the founder of the Data Entry Management Association (Dema).

The first meeting of the recently formed organization [CW, Sept. 13] is scheduled tomorrow in Chicago.

The association was established for those people in charge of data entry installations either within companies or in service bureaus, Bodek said.

"There was no place for this level of management to really go. Here you have someone who has a responsibility that equals about half of all the money being spent today in the DP area, but who normally has been at the low end of the prestige level, he added.

The first objective of the organization will be to raise the professionalism of people involved in data entry. "If we can share the best of what we have, all of us can grow," Bodek said. "We want to set up the means to facilitate the sharing of information through a journal, newsletter articles, seminars and eventually through our own schools."

"We also want to interact with the manufacturers. We have lots of problems in this area. We have problems with standardization, for example. Each equipment manufacturer sells its own device and its own methods, so it's very difficult to go from one piece of equipment to another or to cross-train people," he said.

"The majority of people who are becoming members are those that run key-to-disk installations, but as we grow we are going to encompass all current methods.

"I believe we will grow as a profession and maybe some day, instead of calling ourselves 'data entry management,' we might call ourselves 'data base management,' those in charge of the entire aspect of the data base."

Bodek, who has been in DP since 1961, said the formation of Dema was prompted by a group of professional friends who saw a need for this type of association.

The organization currently has over 110 members. Meetings are also scheduled Nov. 5 in Rye, N.Y., and Dec. 7 in Pasadena, Calif.

Membership is $45; the fee for a second member from the same facility is $25. Dema can be reached at 16E Weavers' Hill, Greenwich, Conn. 06830.

User Calls Upgrade to Criterion 'Ho Hum Affair'

(Continued from Page 31)

The peripheral card reader was necessary to replace a unit integrated into the console of the Century 201. The console of the Criterion is designed for independence from specific data input media, Lindee noted.

Lindee, Leonard Mendoza and Charles Crespi, two programmer/analysts, and Tyrone Dowdell, operations manager, attended a three-day orientation session at nearby El Segundo, Calif.

Then, to qualify feasibility of the new installation, Dart personnel took copies of actual disk files, running programs and input media to NCR's Rancho Bernardo facility for two weeks of staging. There they could run their usual programs on a Criterion, gain the hands-on experience necessary for conversion and also achieve the level necessary for a firm installation commitment, Lindee said.

There were some initial problems, he recalled. The prototype Criterion scheduled for use was undergoing modification. There was also a delay in putting together the exact configuration of disk and other peripheral units to match the Dart installation.

"Staging was scheduled to begin on a Tuesday morning," Lindee said. "However, we didn't gain access to the Criterion until Thursday morning. This delay had already put staging two days behind which, naturally, generated some concern on both sides about a prolonged staging situation.

"By early Thursday evening we had successfully completed running our freight bill, payroll and accounts receivable systems. This was in addition to running in a multiprogramming environment to satisfy our on-line and programming requirements.

Savings to Be Reinvested

The Criterion mainframe with 192K of main memory rents for approximately $1,000/mo less than its Century 201 counterpart, Lindee said. Following the established pattern for Dart, this savings will be quickly reinvested in upgraded capabilities, he noted.

Lindee looks forward to the day when the Dart system will be oriented heavily toward on-line applications. Printed reports will be replaced almost completely by systems of on-line reference, of which current applications have already saved an estimated $27,000 annually in paper costs alone.

New! $1095 Fire Safe for small systems media

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The compact DataGard comes with casters and a textured off-white finish. Options include second door colors and a functional formica work top. The DataGard fire safe will economically store two 3348 Data Modules, ten 2315 Disk Cartridges or numerous other combinations of magnetic media including floppy disks, computer tape, microfilm, and cassettes.
For complete information, call your local Tab representative or write Tab Products Company, 2690 Hanover Street, Palo Alto, California 94304.

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Criterion Users Plan Many On-Line Jobs

(Continued from Page 31)

Medics programs, St. John said.

The NCR system was "easy to convert," he commented, adding the hospital really just took one system out and plugged the other in.

Southern Bank Card Corp.'s Criterion replaced a Century 300, according to John Bull, the firm's president. The company provides DP and marketing services to banks and merchants using Bank-Americard, he said.

"We do a good bit of on-line processing here," Bull said, "and the Criterion was cost-competitive for its capabilities. Besides, it's the new product line, and the company likes to keep in the 'forefront.'"

The firm's configuration includes the 8550 with 256K of memory, three disk drives, a 160-column printer, high-speed magnetic tape and card reader.

Negotiations — Part 3

Detailed Planning Can Maximize the Team's Position

By Joe Auer
Special to Computerworld

Given an adequate strategy for your negotiating team to employ during negotiations, the next step is to do the final detail planning of the negotiations themselves.

This includes the time and place where the negotiations will occur, the limits of authority that are or will be evidenced on both sides of the table and a detailed agenda for the negotiations. Some ground rules for the negotiations should be established and the team should rehearse.

The objective of these five areas is to maximize your negotiating team's position.

Careful consideration of the time and place is necessary for several reasons. The user's negotiating team should have the "home field advantage," timely access to all data required in the negotiations and an environment which is comfortable mentally and physically for the team members.

Limits of Authority

Next, determine the limits of authority that your lead negotiator and/or various members of your team will have. There are advantages in going to the negotiating table with the overt, announced authority to make a deal.

Conversely, there are advantages in going to the negotiating table with only limited authority, such as recommendation power for a higher authority on which to sign.

The planning of an agenda for the negotiations optimizes the participation of the negotiating team members, sets the stage for successful negotiations and shows you are well-prepared.

One approach is to structure your agenda so minor items are presented first and agreement by the vendor can be obtained easily. This sets the stage for agreement of larger and more important issues later.

Ground rules for the negotiating sessions are just as important for the individual participants. Setting the ground rules can be to your advantage.

For instance, in a preplanned work session to discuss the financial trade-offs between various acquisition methods, you can make sure no emotionalism with respect to maintenance problems comes into the fray.

In your negotiation rehearsals, pick out some particularly obnoxious, discerning, argumentative person or people from your company that have a general concept of your negotiations position paper. In fact, this may be one of the members of your team.

Have that person play the devil's advocate. Vendors do it all the time in "role-playing sessions" prior to sales calls, presentations, negotiations and the like; so, if you don't have effective rehearsals, you will be at a disadvantage during negotiations.

By this time you should be adequately prepared for the actual negotiations to ensue. Remember, when you are conducting negotiations with a computer vendor, that is the time to put in writing all of the implications, promises (statements like, "We don't need to write that down, you can trust me"), proposals and benchmark results.

This article, the last of three in a series about optimizing computer negotiations, deals with maximizing the team's position.

Make sure all the reasons you wanted the computer in the first place are included in the written document your company will be executing.

You can accomplish this in such a way that you don't jeopardize your day-to-day working relationship with your vendor. Treat it like a normal business transaction and make sure both sides have a clear understanding of the relationship.

Make sure it is documented so a third party could pick up the completed agreement and understand the actual deal.

Don't Rush

There is no reason to rush the negotiations. You may actually have a real urgency on your part to complete the negotiations, but keep in mind you may only have a sense of urgency that has been created for you by the vendor. In any event, remember to negotiate at your speed, not theirs.

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Auer is president of International Computer Negotiations, Inc. in Winter Park, Fla.

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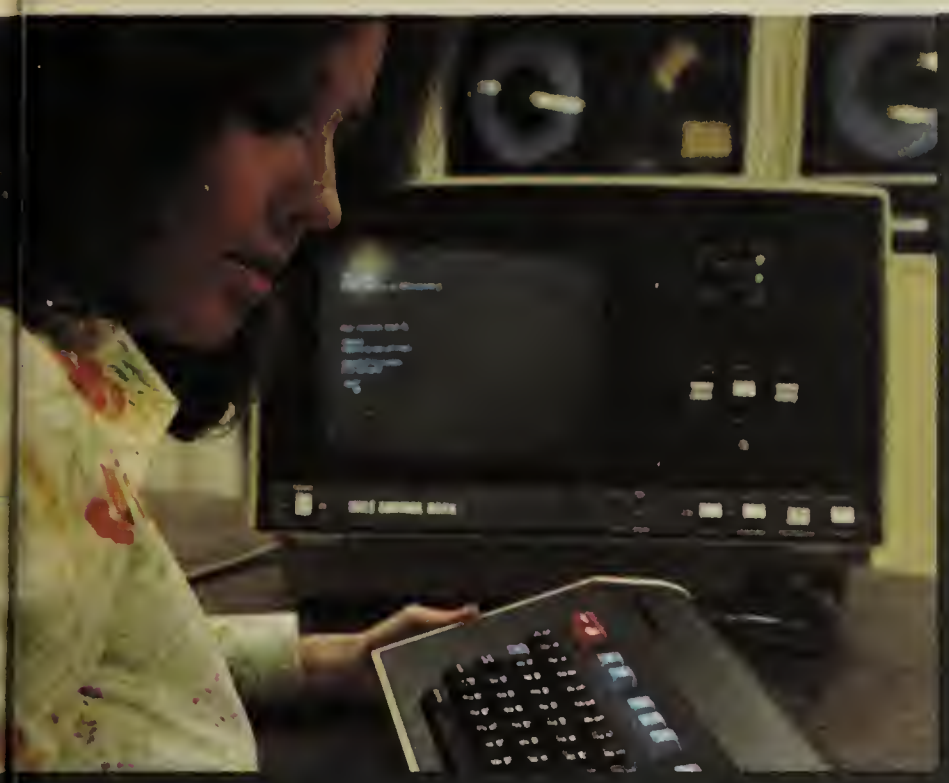

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Our CDC CYBER 18 works as a stand-alone mini—or interfaces with the CPU for cost-effective distributed processing.

On-Line System Solves Manufacturers's Parts Problem

OKLAHOMA CITY, Okla. – Manufacturers that build complex products with many features and options face a common problem: they must decide if a particular product can be built as ordered and, if so, what parts will be required, according to a spokesman for a local company which dealt with this problem.

At Fife Corp., a major producer of guiding, scanning and gauging systems for materials produced in roll form here, this complicated configuration/decision-making process is now handled as part of order entry – in just three minutes via a computer terminal, the spokesman indicated.

Yet every Fife order involves a unique, highly-customized product which can range in cost from $1,000 to $150,000 and includes a total of several hundred parts. These are selected from, for example, some 40,000 possible combinations for the power unit alone, he explained.

During the new procedure, a production planner enters the order using the terminal's light pen. He completely configures it during an interactive conversation, involving from one to two dozen questions and answers, with Fife's IBM 370/115.

On-line editing procedures guard against the selection of misfits and "illegal" combinations. No matter how complex the end product, there are only four opportunities for planner error and the system gives warning at these points, he noted.

When the configuration is complete, an IBM Model 3277 terminal displays all parts selected down to the zero-level bill of material. The planner can check these critical parts and inquire into the inventory status of any items that he thinks might presend problems, he explained.

Replaced Manual Configuration

This automated system replaced manual configuring with preprinted forms which took 30 to 45 minutes. But the saving in configuring time itself is small compared to the savings in time at many levels which result in the high accuracy and complete consistency of the new system, the spokesman commented.

Manual configuration was not always accurate, he stated. Also, virtually every department had its own bill of materials – including engineering, manufacturing, finance, marketing and the man on the shop floor.

These were not always updated and, consequently, not always in agreement. As a result, hours were wasted on the shop floor, he said.

In some cases, if the necessary part was not specified on the accounting bill of materials, the completed item went out without the part being priced, affecting Fife's margin, he added.

With the terminals, everyone uses the same bill of materials stored in the system. Thus, everyone is working from the same, current, accurate information, the spokesman noted. Because each order is also stored in the computer as soon as it's configured, the system not only gets customer orders into production faster, but they can be tracked more closely and easily.

This permits Fife personnel to respond most effectively to customer inquiries. Fife can tell by a terminal inquiry if an order is in marketing, engineering, production control or on the shop floor, he added.

Parameters Aid Schedulers

From the order-entry configuration information, the 370/115 schedules production with the aid of parameters such as due dates, priorities and lead times provided by production control personnel. On a release date basis, the computer prints a hard copy of the assembly order and the picking order, according to the spokesman.

The picking order is displayed and processed on the terminal in the inventory area.

Before the system became operational, Marshall W. Simpson, supervisor of inventory control, said he thought Fife would have to run the manual system parallel to the computer for about a year. But at the end of the first week he was ready to drop the older system.

"In the past, accurate configuration depended on experienced, key people," Donald D. Paulsen, executive vice-president, said.

"Crisis management became our standard form of operation and production efficiency inevitably dropped. Now, we anticipate a 20% increase in production efficiency as we eliminate 'hot lists,' priority expediting and similar fire-fighting techniques," he added.

Fife also expects a reduction of 15% to 20% in total inventory value as a result of the improved inventory management and control, plus a substantial decrease in instances of out-of-stock parts, Paulsen said.

Fife plans to use the configurator as a simulation tool. This will allow personnel to ask the computer "What if we sold X number of product Y . . .?" and the system will answer what the effect would be on inventory, manpower planning, production, scheduling, financial requirements and the like, he explained.

Saves Taxpayers $70,000/Year

State Using System to Herd Off Livestock Epidemics

HARRISBURG, Pa. – The Agriculture Department here has developed a computerized system to keep track of disease outbreaks in livestock herds in order to stop them before they become epidemics.

Believed to be a unique state government service, the system is expected to reduce losses suffered by farmers from animal diseases as well as save taxpayers up to $70,000 annually in recordkeeping costs.

According to Raymond J. Kerstetter, Pennsylvania secretary of agriculture, the commonwealth will be able to keep closer track of livestock herds to pinpoint possible problems and forestall potential epidemics.

Information on the commonwealth's 50,000 herds totaling nearly two million cattle is stored in a Univac 1110 system in the state DP center in nearby Middletown. The center operates under the direction of James N. Wade, secretary of administration.

The data includes records of infectious diseases as well as information on 900 accredited veterinarians.

Linked to Terminals

The computer is linked to Uniscope 100 terminals located in eight regional offices of the Agriculture Department and its headquarters here. The regional offices are in Meadville, Williamsport, Tunkhannock, Gibsonia, Altoona, Summerdale, Lansdale and Lancaster.

Personnel in the district offices can type questions into the display terminal to inquire about a herd, specific animals, the herd owner or the veterinarian associated with the herd.

The requested data is displayed on the screen of the terminals and, if desired, a hard-copy version of any messages appearing on the screen can be obtained from an associated printer unit.

Assists Herd Owners

The data permits regional department personnel to assist herd owners in acquiring health certificates needed for the sale or showing of their animals. It also allows for the dissemination to herd owners of up-to-the-minute findings of all brucellosis and tuberculosis animal testing.

The system replaced manual file keeping, resulting in an annual saving of $70,000, the state claimed.

The system was devised and implemented by the Bureau of Administrative Services' Division of Management Systems. Dr. Everett E. Denlinger, director of the Bureau of Animal Industry, provided the technical logic for the system, assisted by Dr. John Dick, head of the bureau's Brucellosis and Tuberculosis Division.

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Portfolio Probes Considerations In Centralization

PENNSAUKEN, N.J. – Economy of scale is the reason most frequently given for the centralization of operations while effectiveness is most often cited as the reason for decentralization, according to a portfolio, "Centralization: 'To Be or Not to Be'" in the Auerbach Data Processing Management Information series.

On one hand, decentralized systems may have unused capacity; on the other hand, they could be overloaded, generating pressure to upgrade equipment or purchase expensive service bureau time, the article stated.

But "a single-purpose mini, programmed for a specific application, is extremely inexpensive," Auerbach noted.

"Furthermore, if it is used as an office machine, it does not require the operator or programming and technical support of a general-purpose computer.

Change is Traumatic

"Change is traumatic," Auerbach warned, "and the average organization is well-advised to avoid it unless it is well-justified. For this reason, a DP manager should look carefully into the question of organizational change before acting.

"In fact, one key question should be raised before any detailed analysis is performed: Why is the centralization vs. decentralization issue being raised at all?" Auerbach said.

"If the answer is that the issue is politically motivated (and it frequently is), the manager should attempt to resolve [it] by means other than organizational change," according to the article.

The portfolio is available from Auerbach Publishers, Inc., 6560 N. Park Drive, Pennsauken, N.J. 08109.

After Five Years of Deciding

Firm's Mini Eases Cash Flow Problem

By Esther Surden
Of the CW Staff

PHILADELPHIA – It took five years for Rittenhouse Book Distributors, Inc. to purchase its minicomputer, but when the selection process was finally over, Treasurer Daniel Foster could program the system himself.

The company was running into a cash flow problem, Foster noted. With an open invoice file of almost 12,500, a customer master file close to 2,000 and more than 300 invoices to prepare each day, the firm realized the need to computerize.

First came the inevitable brush with time-sharing, Foster said. With the system, accounts receivable and bills were caught up, but each bill had to be fed into the system manually and the invoices had to be individually typed.

So, the investigation of the small-business system area began, he reported.

"I saw everything from Datapoint [Corp.] to a Japanese outfit and considered NCR, IBM, Basic/Four [Corp.], you name it. We subscribed to Datapro and went down the line, contacting all the manufacturers in the $40,000 to $80,000 price range.

"I'd call up the salesmen who'd come out for a primary talk. If that seemed okay, we'd go to their office to see the 'pony show.' After that, I'd visit installations," Foster said.

Finally, the company decided on a Microdata Corp. Reality system because the dealer, "Keystone Data Systems, wanted to adapt the computer to my business instead of wanting me to adapt my business to the system," he reported.

The dealer also encouraged Foster to learn to program himself. "I went to a few classes and before I knew it I was programming a few simple programs," Foster stated.

The Reality System was delivered in September 1975. It presently has 32K of core, 10M bytes of disk, three CRTs, two plotters and a 200-char./sec line printer.

The company has 8K of core on order to accommodate a court CRT which is also on order, he noted. The system cost $39,750, he added.

The company, a book outlet for medical and nursing books, does "more or less the standard accounting functions" with the system, Foster indicated.

Foster wrote all of the programs himself and had a hand in the program development aspect. "I'd hate to think how long it would have taken to have to explain the book business to a DP specialist," he said.

Programs were written in Data/Basic, he added.

In addition to accounts receivable and invoicing the system handles post invoicing, purchase orders, a mailing list, daily sales report, employee pension plan and order entry.

Foster has also developed a check writing program which is a time saver, he said. The system is now saving five hours of the president's time per week in preparing reports on consignment accounts, Foster noted.

Rittenhouse had previously been able to get out only 120 invoices per day with an accounting machine, but the Reality system produces some 320 per day and before 4:00 p.m.

Getting books out faster has also improved sales, Foster reported. "We spend 90% of our time on 10% of our sales. Reality has made considerable inroads into that 90%," he noted.

One of the specialized applications involves the special order file, he said. This file keeps a record and creates an invoice with everything on it except the price for orders that have to be customized.

When the book comes in, the customer service people can search through the particular file and find the book, he explained.

SM Adds Add-On

NEWPORT BEACH, Calif. – Standard Memories (SM) is the latest to announce an add-on or replacement memory for the Digital Equipment Corp. PDP-11/70 with the introduction of the Ecom 70.

The unit, packaged in a 12-1/4 inch rack-mounted chassis assembly which can contain up to 16 memory modules and a control card, can hold up to 512K bytes in 64K-byte increments, the firm said. Read/write cycle time is 800 nsec, it added.

A remote programming box (RPB) that fits under the enclosure chassis is included in the Ecom70.

The RPB contains reconfiguration controls to allow users to select the address range of the Ecom 70 and a downgrade switch to allow users to disconnect non-DEC memory without hardware modifications, power controls and fans, the firm said.

The Ecom 70 64K-byte memory system, including the RPB costs $7,100. A 64K-byte expansion kit costs $4,400, the firm said from 4120 Birch St., Suite 105, Newport Beach, Calif. 92660.

Wang CPU Features Faster Throughput

TEWKSBURY, Mass. – Wang Laboratories has enhanced its System 2200 with another CPU offering faster throughput, larger user memory and extended Basic language capabilities, the firm said.

The firm also introduced a portable matrix printer for all Wang systems.

The 2200VP is designed for heavy disk-based applications by commercial users requiring enhanced file manipulation techniques, the firm said.

Other users with intensive scientific and number crunching applications can also use the CPU, a spokesman noted.

The 2200VP provides up to 64K bytes of memory with parity. Memory is available in 16K modules, the firm noted.

'Less Time Consuming'

The extended Basic-2 language is said to make writing, documenting and debugging programs less time-consuming.

Improvements have been made to the mathematics and matrix instruction sets, data manipulation techniques and error handling features, the company added.

The microprocessor-based CPU features a 500-nsec random-access memory (RAM) used for both user memory and the instruction set.

Previously, the instruction set had been hardwired in read-only memory, Wang noted. Now, the cycle time for most instructions is 600 nsec compared with the former 1.6 μsec, the firm added.

The 2200VP can use all peripherals formerly in use with the System 2200 except for tape cassette drives and a hand-fed mark sense card reader, the firm noted.

Software-Compatible

It is software-compatible with the previous processor, the company said.

The matrix printer, Model 2251, prints a 40-column character line at 110 char./sec on a 3.75-in. 200-ft paper roll.

The 96-char. alphanumeric type can print in either blue or red ink by selecting either color or programming in color changes, the firm noted.

Lists Programs Loaded

A list/print control allows the user to list programs loaded into the CPU, it added.

The printer costs $1,100. The 2200VP with 16K of memory and nine I/O slots costs $13,000 and maintenance is $75/mo, the firm indicated.

Additional 16K memory modules cost $3,200 each and maintenance is $32/mo.

Rental and leasing plans are available, Wang said from 836 North St., Tewksbury, Mass. 01876.

DEC Announces Disk Drives for PDP-8, PDP-11

MAYNARD, Mass. – Digital Equipment Corp. (DEC) has announced four disk drives for its minicomputers and mainframes.

The RP05 and RP06 disk pack drives are designed for use with the PDP-11, Decsystem-10 and Decsystem-20 systems. The RK05F nonremovable double-density disk operates with the PDP-8 and PDP-11 minis while the RK06 can be used with all of the Unibus-based PDP-11 systems, DEC said.

Field Upgradable

The RP05 disk drive uses the same disk packs as used on the RP04 disk system, a spokesman said. It can be field upgraded to the RP06 through use of a kit.

The RP06 has a formatted storage capacity of 176M bytes for PDP-11 minis and 197M 7-bit Ascii characters for use with the Decsystem-10 or Decsystem-20. It has double the track density of the RP04, the firm said.

Double-Density Version

The RK05F is a double-density version of the RK05 disk pack with a capacity of 5M bytes on the PDP-11 or 6M bytes for the PDP-8, DEC said.

The RK06 accepts a dual-disk cartridge with a 14M-byte storage capacity, the company indicated. It is a top-loading unit featuring a track-following servo system with one of the four disk surfaces dedicated to servo control and tracking information, DEC said.

Up to eight RK06 drives will operate from a single controller, the firm added.

Systems running RT-11, RSX-11D, 11M, IAS, RSTS/E and Mumps operating systems can handle the RK06 drive, DEC said. The RP05 and RP06 are supported by RSX-11D, 11M, RSTS/E, IAS, Mumps, Tops-10 and Tops-20, it added.

The RP05 costs $29,900; the RP06 costs $34,900. Both will be available the last part of 1976, DEC confirmed.

The kit to upgrade the RP05 to the RP06 costs $10,000, it noted.

The RK06 costs $9,500, the RK05F costs $6,500 and both will be available in 1977, DEC said from Maynard, Mass. 01754.

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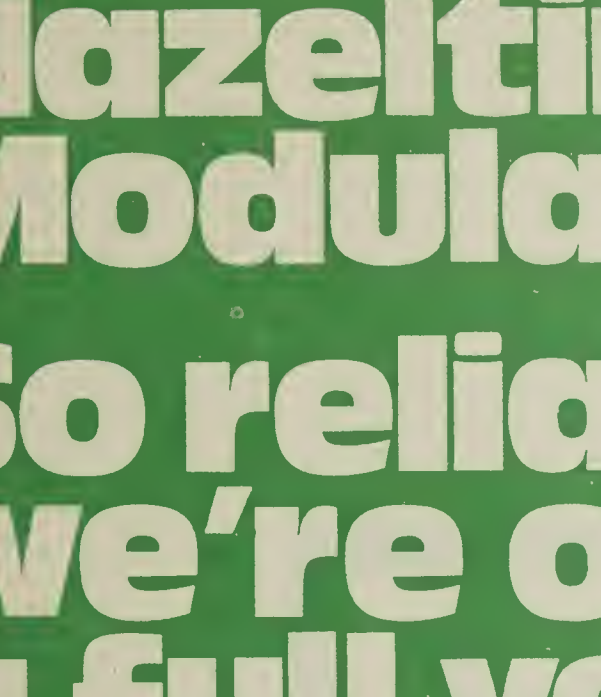

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User Can Be Loser When Buying System From Dealer

By Michael Dunlop
Special to Computerworld

With the specter of many unhappy minicomputer installations beginning to emerge, a buyer should exercise extreme caution before entering into a contract to purchase a minicomputer from a dealer by making sure the dealer is financially sound and has a good local reputation for completing the job.

Minicomputer Exchange

Together with the arrival of the latest generation of computers, the minicomputer, comes the minicomputer dealership.

On the surface, this dealership, whose purpose is to sell and supply programming and installation help locally for a particular manufacturer, seems to provide a very reasonable way for the manufacturer to market his products. But this marketing method may cause problems for the potential minicomputer purchaser.

Dealerships burgeoned when small mini makers faced severe financial problems during the recent recession. The vendors needed a rapid injection of cash together with increased sales and a reduction in accounts receivable, an area which has been a perennial problem in the computer business because of the difficulty of defining completion of a system and, hence, receiving payments.

To help alleviate this problem, some manufacturers decided a dealership program, regionally and nationally, would help solve short-term financial problems.

To set up a dealership, the mini maker must persuade a group of people or sometimes a small service bureau to buy a minicomputer cash-on-delivery (COD) or make a cash advancement and pay for subsequent orders with either COD or 30 days net as terms.

Noncompliance with these terms results in the loss of the dealership.

This action immediately generates sales for the manufacturer, improves his cash position and passes the receivables problem onto the dealer, who is sometimes ill-equipped to cope with it.

Pyramid Selling

Some manufacturers employed salesmen to go out and sell dealerships by promising the dealer substantial return on his investment and easy entry into the lucrative and expanding minicomputer market.

Other mini makers offered large areas to the dealers, encouraging them to set up subdealerships.

These two strategies have started – perhaps not intentionally – a dangerous pyramid structure in which the potential purchaser of a minicomputer system can be the loser.

There are over 70 different minicomputer companies in the U.S. Although many are supported by reputable distributorship networks, some are taking on the guise of pyramid selling operations.

Financial Stability

Another problem area confronting the minicomputer dealer is financing.

Many of these operations are set up on capitalization of less than $100,000. If an installation is unsatisfactory, then the buyer will not pay the dealer. The dealer has no alternative but to pay the manufacturer, however, so he is left with financing the computer.

If two unsatisfactory installations occur at the same time, a dealer could tie up between $60,000 and $80,000. If he also lost $20,000 on a fixed-bid software contract, which is not unusual, it would not take a financial genius to predict the dealer's potential demise.

To prevent this problem, the dealer's terms with the purchaser have to be strict: payment for the computer on delivery, which frequently occurs before the computer programs have been completed.

By paying for the system before the programs are complete, the user has lost his best weapon against the dealer to ensure the satisfactory completion of programming.

Dunlop is president of Computer Information Center, Inc., a firm of consultants based in Bellevue, Wash.

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- 10:45-12:00 – Panel–The Data Base Future: DBTG, relational, distributed or?
- 12:00-1:30 – Luncheon/Speaker: Leo J. Cohen: The Impact of Data Base on Management's Business.
- 1:30-4:00 – Four Concurrent Sessions

SESSION 1
Review of the Packages;
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SESSION 2
Service Analysis;
Data Base System Requirements Definition

SESSION 3
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The DBA – Roles, Methods and Structures

SESSION 4
Distributed Systems;
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Diversified Introduces First Unit in Family With Interdata CPU

TUCSON, Ariz. – Diversified Data Systems, Inc. has designed a family of small business systems based on the Interdata 6/16 for first-time users.

The first member of the Ibols 160 family introduced was the 166, which includes the CPU with 64K bytes of core, CRT console, 10M bytes of disk and a 300 line/min printer.

Software for the system includes the Interdata operating system OS.6/MT2 and Diversified's Ibols/16-II-Oasis software package which includes Cobol, a file management system, sort/merge utility and an Ebcdic/Ascii translation utility.

In addition, an integrated business accounting system is included with the package. It includes processing modules for accounts receivables, payables, payroll, invoicing, inventory control, fixed-asset accounting and general ledger, the firm said.

Users can modify the horizontal and vertical format of most of the standard reports without changing the programs, Diversified said.

The unit can optionally emulate the IBM 2780; users can obtain RPG-II as well, the company added.

The basic system costs $49,500 with delivery beginning Jan. 1, the firm said from 2601 N. Fairview Ave., Tucson, Ariz. 85705.

Printer From Decision Data Replacement for IBM 1403

HORSHAM, Pa. – Decision Data Computer Corp. has a 900 line/min printer for the IBM 3/8, 3/10, 3/12 and 3/15.

The Model 6609 is a direct replacement for the IBM 1403, Decision Data said. The printer operates under standard system software and requires no changes to user programs, a spokesman added.

The system accommodates forms with up to six parts, he said.

Monthly rental prices for the 6609 range from $670 to $825 depending on the contract term selected; the purchase price is $24,450, Decision Data said from 100 Witmer Road, Horsham Pa. 19044.

For Certain Dedicated Applications

Microcomputers Cited as Outpacing Minicomputers

By Esther Surden
Of the CW Staff

MONTREAL – Microcomputers can outpace minicomputers for certain dedicated applications, according to speakers at the recent Canadian Computer Show and Conference here.

A dedicated on-line supervisory monitoring system at David Florida Laboratory in Ottawa displays the status of the Communications Technology Satellite (TCS) altitude display system, according to W.F. Croskery, manager.

The display uses IMP-16 microprocessor components as well as a special interface to "decommutate the spacecraft telemetry data and drive a flowchart display that indicates the status of the control system," Croskery told the attendees.

The company chose microcomputers because "we wanted stand-alone smart machines; we didn't really want a complex system," Croskery noted. What developed was more sophisticated than the company envisioned, he said.

The display was needed so engineers could look at one panel and determine the system's status rather than to look at six different displays, Croskery explained.

Expensive Effort

The development effort was expensive, Croskery admitted. "For one system it isn't efficient to use a microcomputer, but if you are designing more than one, as we intend to, it becomes cheaper than implementing it on a minicomputer."

Microcomputers have the additional advantage of being less complex and therefore more reliable than minicomputers, Croskery said.

The company began building the system in April and development of the operating system took about six man-months, he added.

M.S. Gold of Bell Northern Research in Ottawa told the group about a Processor Information Exchange System known as Pies.

The system uses multiple microprocessors which function as message switchers to provide data communications between a number of control processor complexes in a switching system, Gold said.

Increased Capacity

The use of micros has allowed Bell to realize an increase in system capacity and to lower system cost, he noted.

The problem solved by the micros involves the replacement of electromechanical equipment.

As many as 800 of the electromechanical transmitters and receivers could be located in a medium-scale office, he noted, adding when switching systems are close together, it becomes very expensive.

Requirements of the Pies system included high reliability and duplicate micros are used for the necessary redundancy. In some applications as many as three can be used to handle greater traffic, he indicated.

In the system, the micros are identical and operate independently of each other, Gold stated. The units operate synchronously and are accessed as though they were I/O units. The I/O bus between the micros and the processor can be accessed by either of the micros, he added.

In the Pies system, each microprocessor is tied to the I/O bus and, thus, functions as a microcomputer, Gold continued. "This could be interpreted as a move toward distributed processing although our original intent was not to do so."

The internal message contains three control words. The first word contains two progress markers, the second is a checksum over the remaining ten words.

The remaining is distinctive code, he noted. The micro ignores any message that doesn't agree with the checksum, he said.

The system provides more real-time power than the firm needed, but shared memory wouldn't have been adequate since the applications required reliability and thus isolation, he explained. "We could not tolerate a loss of sanity to pull down the entire station," Gold said.

CW Photo by E. Surden
M. S. Gold

Icom Has Floppy Subsystem For OEM, Hobbyist Micros

CANOGA PARK, Calif. – A high-performance floppy disk subsystem designed for OEM or hobbyist microprocessor-based systems has been introduced by Icom, Inc.

Model FF-36, dubbed the Frugal Floppy, employs the same elements as the firm's FD360 system, according to a spokesman.

The FF-36 contains a controller/formatter, a floppy disk drive with daisy-chain capability and all required connectors and cables. The unit can be supplied as a single or dual drive system, he indicated.

Icom's FDOS-II software package was designed for any Intel Corp. 8080 or Motorola Semiconductor Products, Inc. 6800-based system, the spokesman stated.

The FDSO-II software features named variable length files, auto file create and open and close and multiple merge and dclete, he added.

FF-36-1 is priced at $995 in small OEM quantities or $1,195 for a single unit. Icom is at 6741 Variel Ave., Canoga Park, Calif. 91303.

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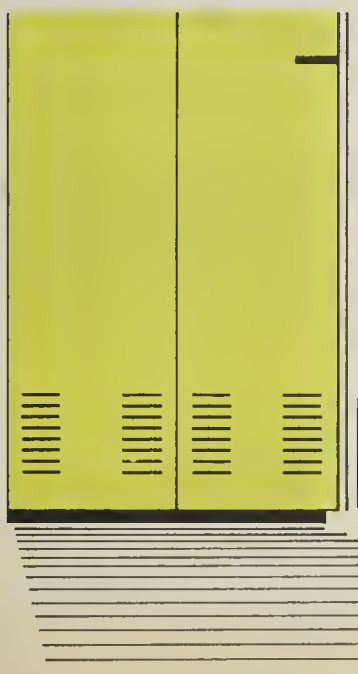

370/168 memory

Distributed System Helps Scientists With Satellite Data

OTTAWA – Canadian geophysicists are using minicomputers to collect data to help measure the nature of such phenomena as the slight wobble of the earth and the minute changes in its rotational speed.

The data mainly consists of precise locational fixes made on navigational satellites, but it is also used in polar motion studies being conducted by the Earth Physics Branch of the Canadian Department of Energy, Mines and Resources.

The data is transmitted to the U.S. Satellite Control Center (SCC) at Johns Hopkins University in Maryland where, combined with similar data collected from 22 other points around the globe, calculations are made to improve the accuracy of the U.S. Navy's Navigational Satellite System.

Currently, two Canadian stations 2,600 miles apart are actively collecting the data. One of the stations is here and the other is at Calgary, Alta. Each uses a Hewlett-Packard Co. (HP) 9600 data acquisition and processing system; the two are arranged as a distributed system.

The network, used primarily for data acquisition and identification, also performs data validity tests to determine if system malfunctions occurred and distorted the data. The systems are also used for data communications and a data transmission log is maintained.

Each mini receives the data over hard wires from an associated satellite tracking station which is part of the U.S. government's worldwide Tranet satellite tracking network. Tranet is used for acquiring and compiling fixes on the Navy's navigational satellites.

The behavior of the satellites during thousands of orbits has confirmed many modern conclusions regarding the shape and physical makeup of the planet, according to Dr. Josef Popelar, a geophysicist.

For example, the earth's center of gravity has been proven to be offset from the geometric center; the earth is not actually a globe, but slightly flattened at the poles and pear-shaped, depending on the viewing angle.

The more orbital observations made, the more can be learned about the planet and the more accurate will be the mathematical models of the earth's behavior, Popelar said.

Study Gravity Field

Also being studied with the Tranet system are the gravity field of the earth and other force factors, such as solar radiation pressure and atmospheric drag, which affect the motion of satellites over the long term.

By improving the understanding of the earth's motions and gravitational field, the accuracy of satellite, interplanetary probe and missile launchings are improved, Popelar said.

"We contribute our tracking data along with the other stations once or twice daily. SCC conveys this data to a large computer where it is used in a sophisticated force model to recalculate the satellite's orbit with greater accuracy," Popelar said.

The data being collected by the Tranet tracking stations, such as those at Calgary and Ottawa, consists of precise information on frequencies of received satellite radio signals with respect to an accurate time reference.

Because of the relative motion between the satellite and the tracking station, the frequency of the transmitted signals is altered and this so-called Doppler shift is directly related to the relative velocities and locations of the tracking station and the satellite.

Data Transmitted

The parameters acquired and transmitted to SCC vary for each station. Typically they consist of station identification, day number, year, satellite number, hour/min/sec/msec of tracking instant, Doppler count, refraction count, temperature, pressure, humidity and format codes.

Each data message must contain information required by the communication protocol such as priority, message routine indicator, originator and time.

Data collected at Calgary is transmitted over a dedicated line at 300 bit/sec to the central computer station here.

Data from both stations is temporarily stored at Ottawa on the system disk using the HP RTE file manager software package. Once or twice a day, the HP mini scans the appropriate data files, identifies individual satellite passes and selects "good" passes for permanent storage.

The Canadian researchers here are concerned primarily with polar motion studies using two independent techniques which are constantly being compared.

Photographic zenith tubes are used at Calgary and Ottawa for precise astronomical positioning. These are essentially vertically mounted telescopes used to photographically record transits of stars close to the zenith. This information is used for astronomical determination of polar motion and the earth's rate of rotation, Popelar explained.

Polar motion represents the changes in the orientation of the axis of rotation of the earth with respect to the earth's figure. As the axis of figure is defined by the axis of rotation at a given epoch and can be identified with the geographic poles, the polar motion results in a significant variation of the instantaneous pole of rotation with respect to the geographic pole, describing approximately a circular path every 14 months.

This wobble must be continuously monitored with great accuracy to maintain a highly stable reference system, Popelar noted.

The distributed minicomputer system consists of a 32K HP 2100 central computer operating under multiprogramming real-time executive with file manager, paper tape reader, 5M-byte cartridge disk drive, 30 char./sec console printer and card reader.

The distributed system package provides on-line communications between the terminal and central computers and gives the terminal full access to all the resources of the central system, such as data storage and file manipulation on the central disk, program scheduling on the central computer and terminal program development and storage.

The terminal system consists of a 16K HP 2100 minicomputer, paper tape reader, console printer and card reader. It operates under a terminal communication executive as an I/O device with its own programming capability.

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Lawyers' Payments in Question

Telex vs. IBM Generates Glut of Suits, Countersuits

By Edith Holmes
And Molly Upton
Of the CW Staff

TULSA, Okla. – Numerous lawsuits are amassing in the wake of the Telex vs. IBM suit settled out of court one year ago.

Most of these pertain to payment of lawyers' fees by Telex. However, IBM has entered the act by filing an action just in case it is told by the Tulsa court it must share in some of these payments by Telex.

In the case of Walker vs. Telex and IBM, Telex's former attorney Floyd Walker has filed for payment of $1.5 million he claims Telex owes him for services rendered under his employment contract.

Telex's counterclaim against Walker, filed Sept. 17, seeks $938,676.76.

In IBM vs. Telex Corp. and Roger M. Wheeler, IBM is seeking to indemnify itself against participating in payment of Telex's legal fees.

This trilogy of suits was filed in the District Court of Tulsa County.

Another former Telex attorney, Moses Lasky of San Francisco, who represented Telex in its appeal to the Supreme Court, has filed suit against Telex seeking $1 million in payment. The suit was filed in the U.S. District Court of San Francisco.

And a former Telex employee, Harry Ashbridge, intended to file suit last week in the District Court for Hennepin County, Minn., claiming Telex owes him $25,000 for his services to the company as a paralegal during Telex vs. IBM.

In Walker's suit against Telex, filed last year, the Tulsa court established that both Telex and IBM will be held liable for any attorneys' fees the court decides are owed.

At issue, Walker said, is what will be the basis for his payment; whether that will be the amount of the counterclaim judgment.

In the settlement of Telex vs. IBM, which was made without Walker's consent, IBM's counterclaim judgment against Telex, amounting to $22 million, was waived in return for Telex's dismissal of antitrust charges.

Telex was indebted to IBM for this amount, he said, which was discharged. "I was to be paid according to what Telex received, including any settlement it made, whether for money or in lieu of money," Walker remarked.

A Telex spokesman indicated the firm's position is that Walker is not entitled to anything since he didn't give the firm anything. He declined to comment further.

Before any judgment was rendered in the Telex vs. IBM case, Walker had notified both Telex and IBM that he was claiming an attorney's lien as security for payment of any fee that might be due him, Walker said.

By so doing, under Oklahoma's attorney's lien statute, both parties may be held liable for payment, he said.

The next step in this case is a hearing scheduled early this month on the amount due him, Walker said.

Meanwhile, IBM has filed suit against Telex and its Chairman of the Board, Roger M. Wheeler, in the state district court in Tulsa as well.

IBM claims, as part of the settlement of Telex vs. IBM, Telex agreed to compensate IBM for any loss or expense incurred by the antitrust suit, including reasonable attorney's fees. Wheeler, in his position at Telex, personally guaranteed this indemnity, IBM's papers said.

Telex and Wheeler now claim IBM has breached this agreement and Wheeler's

(Continued on Page 46)

Adapso Analysts Told

Services Industry to Reach $7.9 Billion in '78

NEW YORK – The compound growth rate of revenues for the computer services industry will accelerate from 16% to 20% over the next three years, 1976 through 1978, Richard J. Murphy told the Association of Data Processing Service Organizations' analysts here last week.

This growth will mean an increase in revenues from $4.6 billion in 1975 to $7.9 billion in 1978, he said.

Murphy, director of research and development at International Data Corp. (IDC), outlined five reasons for the accelerated growth rate.

- A high percentage of the EDP market has matured to a stage of cost consciousness in their process of selecting and evaluating alternatives, an objectivity which often spills over to the consideration of the make or buy options on independent information systems or applications.
- Leaders in the services industry have adopted business strategies to provide specific information systems for target market segments that are proving more productive and economical than self-developed systems.
- Vendor supplied software packages are also passing the test of economy and productivity and will become more popular.
- The three-year 1976-1978 period is expected to be the latter half of a relatively stable period of hardware systems.
- A combination of forces, including the above, appears to be carrying the EDP market into the age of distributed processing, in which a hierarchical or pluralistic system will become more popular. This change will provide a more open market for the service industry to compete in.

The computer services industry certainly does not have a small and homogeneous membership and the fortunes of the majority of its members will experience severe competition and economic stress during the next few years, Murphy stated.

This competition will be in the form of advancing hardware technology at lower cost as marketed by the mainframe and minicomputer hardware manufacturer.

In the near term, the competitive thrust is being focused on the market made up of small businesses, many of whom will be switching from data center services to their own computer.

In the longer term, this same hardware trend of the use of microprocessors is expected to increase the ability of the hardware systems manufacturers to compete against the processing service vendors in specific and narrow market segments, he stated.

This means that as the user moves toward the implementation of distributed systems, he will be offering an opportunity to the computer service vendors as well as the hardware vendors, he said.

(Continued on Page 45)

See related story on Page 47.

PDP-11/70 Add-On Opportunities Prompt Independents' Efforts

By Toni Wiseman
Of the CW Staff

With the burgeoning proliferation of Digital Equipment Corp. (DEC) PDP-11/70s – more than 600 systems are already installed – some memory makers are showing a distinct interest in the possibilities of this new add-on marketing area.

At least one however, after close examination, has decided not to compete.

Standard Memories got into the 11/70 add-on area because it sees a potentially large market since the PDP-11/70 is a more powerful machine in the 11 Series, according to Dan Ray, marketing manager.

"And if everything we've heard holds true, there will be a heck of a lot of them out there, if they maintain the popularity the other machines [in the 11 series] have maintained."

Standard is offering memory in 64K byte increments up to 512K bytes, which can be used in multiple chassis up to the total capacity of the machine, he said.

The add-on product will enhance Standard's current 11 Series add-on line since the module on the 11/70 will be interchangeable with a new 11 add-on the firm is planning to announce which will be in 16K word increments.

While Ray had no firm data on the growth of the market, he said 11/70 add-on is currently about 10% of total sales. He predicted the market would grow but could not estimate how much,

(Continued on Page 47)

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Led by Jack Stone, PhD, this two-day seminar will help you improve the usefulness and productivity of your computer operations by increasing your ability to communicate with people — from keypunch operators to the board of directors. Utilizing workshops, case studies and round table discussions, major topics covered include: Challenges and pitfalls of EDP people problems; principles of industrial relations in industry; managing analysts, programmers and operators; managing DP managers and supervisors; computer center end user and top executive relations, and the training, education and development of EDP personnel.

Cost for the seminar, including continental breakfasts and luncheons and all course materials is $300 for the first registrant, and *$260* for additional registrants from the same company.

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Legal Tools For Computer Contracting and Protection

Led by Roy N. Freed, the internationally known lawyer, author and educator in the field of computer law, this 2½-day seminar will show you how to protect your interests when dealing with vendors that supply your installation. The seminar covers all types of contracts impacting computer use — including your own contracts. Other subject areas include negotiations, warranties, avoidance and resolution of disputes, security, fraud, taxation, and techniques for handling any transaction.

Cost for the seminar, including continental breakfasts, luncheons, and all course materials is $325 for the first registrant, and $275 for additional registrants from the same company.

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Cost for the seminar, including continental breakfasts and luncheons and all course materials is $250.

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Led by Dr. Dixon Doll, the nationally recognized teleprocessing consultant, this two-day seminar will familiarize you with the latest advances in data communications, with emphasis on ways to cut costs. The course covers areas like SDLC, HiD-LoD, DDS, newly approved major revisions to WATS, and the impact of satellite carriers.

Cost for the seminar, including workbook, reference materials, luncheons and continental breakfasts is $350 for the first registrant, and $300 for additional registrants from the same company.

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Services Growing 20% Yearly; To Reach $7.9 Billion in 1979

(Continued from Page 43)

Large size, processing-type companies and medium size, software-type companies are expected to lead the industry in growth and profitability during the next few years, Murphy said.

In terms of annual rate of growth of computer services revenue, large processing firms grew 18% in 1975 and medium firms, 10%. Large software companies gained an estimated 20% while medium firms gained 24%, he said.

In 1975, the computer services industry accounted for annualized revenues of $4.6 billion, Murphy said. He projected revenues of $5.5 billion for 1976; $6.5 billion in 1977; and $7.9 billion in 1978.

The majority of large processing companies have experienced a period of profitable growth and are now specializing their services to meet high growth target markets. Many such market opportunities are expected to develop over the next three years, he noted.

Many medium size software companies have achieved a high level of success with a limited product line of software packages. The market awareness and acceptance of these packages has increased significantly over the past two years – due partially to the restricted budgets of 1974-1975 when purchased software improved productivity and due to the improved reliability and documentation of software packages.

The market potential for existing packages is still believed to be large and should provide very profitable business for these companies over the short term.

In the long term these companies will have to diversify and enhance their product line of software packages in order to sustain their current rate of growth, he stated.

Financial Analysis

Detailed financial analysis of small, medium and large processing companies indicates that companies with processing revenues greater than $10 million are above the threshold to realize economy of scale benefits. A total of 82% of the large companies achieved gross profit margins greater than 5% while this percentage drops to 62% of the medium companies ($2-$10 million in revenue), Murphy said.

Both sizes of companies, however, give evidence of marketing processing services that rely more on their specialized skills than on their computer hardware resources.

A total of 61% and 57% of the processing revenues of large and medium size companies respectively come from specialty services, with medium size companies much more dependent on courier delivery than are the large companies. It is apparent that the medium companies that do not have data transmission resources are limited in their growth potential, he said.

IDC projects the industry revenues to increase 20% per year over the next three years. Input/output services are expected to have the lowest rate of growth (8%-9%) and software packages are expected to have the highest rate of growth of the product categories (in excess of 30% per year).

Specialty processing services are also expected to grow at a rate in excess of 25% per year during the forecast period, he noted.

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Or, a DBMS system might be an appropriate solution to the problem, but there's lack of commitment to its installation. DP managers may not be cooperative, and users may refuse to go along. Failure is the result, but it's not the system's fault.

We won't be dwelling entirely on failures, of course. We'll spend a lot of time looking at successful DBMS applications, with stories from users, analyses of systems in use and case studies. All-in-all, it should help you manage your data base better. And it could help you avoid a costly mistake.

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In just two and a half days, *"Legal Tools for Computer Contracting and Protection"* will give you what you need to know to protect your equipment, your systems and your organization.

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The Course Work

Roy Freed, the seminar leader, will review all types of contracts impacting computer use, including:

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- the purchase of time-sharing, data processing services and consultation
- the use of facilities management
- and others

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Roy N. Freed is the Seminar Leader

Roy N. Freed is internationally known for his acuity and expertise in this field, and he will personally direct the entire seminar. A graduate of Yale Law School, Roy has served as inside counsel for a major manufacturer of digital computers, and is currently engaged in private corporate practice in greater Boston with the firm of Pollock, O'Connor and Jacobs. He teaches at Boston University Law School, and has written many articles on this subject, including "Computer Fraud, a Management Trap" (Business Horizons), and "Get The Computer System You Want" (Harvard Business Review). He is the author of the book, *Computers and Law — a Reference Work*, now in its fourth edition, and he also edited the complete, extensive course materials used in this seminar.

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Suits Born of Telex vs. IBM Clog Courts

(Continued from Page 43)

guarantee of it, according to IBM, presumably by contesting any payments to Walker.

Oklahoma law as cited by Walker notwithstanding, IBM maintains it shouldn't have to pay the fees of the losing party's attorney. The issue isn't just how much Walker will get in the upcoming hearing before the Oklahoma court, but who will pay the fee, IBM contended.

Should this court hold IBM liable for any part of Walker's fees, the corporation will seek that money from Telex and Wheeler.

Suit Number Three

In the third suit filed in the Tulsa court involving this same cast of characters, the Telex counterclaim states that it entered into litigation against IBM in the first place at Walker's urging. The agreement at the time was that the attorney's fees would be contingent on a net favorable outcome for Telex.

In its petition against Walker, Telex argues the lawyer knew or should have known that IBM would attach a counterclaim to the Telex antitrust suit alleging Telex had stolen trade secrets from IBM.

Walker failed to anticipate this and then to advise Telex of it. He also neglected to prepare an adequate defense for Telex against IBM's charges, according to Telex.

In the long run, Telex maintains Walker's negligence resulted in the $18.5 million judgment from the Third Circuit Court of Appeals in favor of IBM on the trade secret matter, with no offsetting antitrust judgment in favor of Telex.

'Code Violated'

Charging Walker violated the code of professional responsibility of the American Bar Association and of the Oklahoma Bar Association, Telex said he put his self interest in obtaining a large antitrust settlement against IBM ahead of the defense of Telex against the trade secret charges.

In addition, Walker told Telex he was experienced in antitrust litigation; the company contended that representation was false and his experience was actually very limited.

Over half the amount Telex seeks from Walker is owed to additional attorneys he retained to help him in the litigation by Telex against IBM, Telex's pa-

pers stated. One of these attorneys has brought his own suit against Telex for his fees, however.

Walker said he and his attorneys have filed a response to Telex's counterclaim denying both allegations.

Under his contract with Telex, Walker explained, either Telex or he could hire additional lawyers. Telex did so, and therefore should be responsible for payment to them.

He said he did not hire, nor did he recommend hiring, additional lawyers and sees no reason that Telex should seek to recover these fees from the payment he is seeking.

In addition, Walker said although he wrote an opinion letter recommending Telex initiate its law suit with IBM, the decision to file the suit rested with Telex.

Lasky's case was filed a year ago and scheduled for trial in November or December. Lasky said his agreement to represent Telex included a written contract he would be paid $1 million.

The Telex suit against IBM was filed in February 1972 and was dropped in October 1975. While at one point Telex was ordered to pay $21.9 million and IBM to pay $259.5 million, an Appeals Court then ruled IBM's practices not predatory and ordered Telex to pay $18.5 million for theft of IBM trade secrets.

Litigation efforts ended when Telex withdrew its appeal to the U.S. Supreme Court in return for release of payment of $18.5 million to IBM.

Name Change

SUNNYVALE, Calif. – Selecting what he termed a "nondescript name," President James Woo announced Data Disc, Inc. has changed its name to Amcomp, Inc.

It is developing an editing system for use by newspapers.

In addition to fixed-head disk products, the firm makes tape drives, graphic display systems and slow motion/stop action TV recorders.

NOTICE TO BIDDERS

Commonwealth of Massachusetts, Department of Public Welfare, Office of Management Services, Medicaid Management Information System-R193611.

Sealed proposals will be received by the Commonwealth of Massachusetts Purchasing Agent's Division, 10th Floor, John W. McCormack State Office Building, 1 Ashburton Place, Boston, Ma. 02108 up until 2:00 p.m. 11-17-76 for the Medicaid Management Information System-R193611. The Request for Proposal identified as the Medicaid Management Information System-R193611 may be obtained at the above address. Bids received after the date and hour named will not be considered. The State Purchasing Agent reserves the right to reject any or all bids and to accept the bid best for the Commonwealth. A bidder's conference will be held October 14, 1976 at 10:00 a.m. 21st Floor, Conference Room 1, John McCormack Building, 1 Ashburton Place, Boston, Ma. All interested bidders are invited to attend. Purchasing Agent's Division, Alfred C. Holland, State Purchasing Agent.

1. REMOTE BATCH PROCESSING
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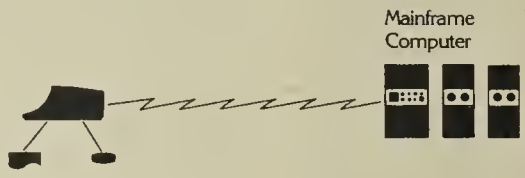
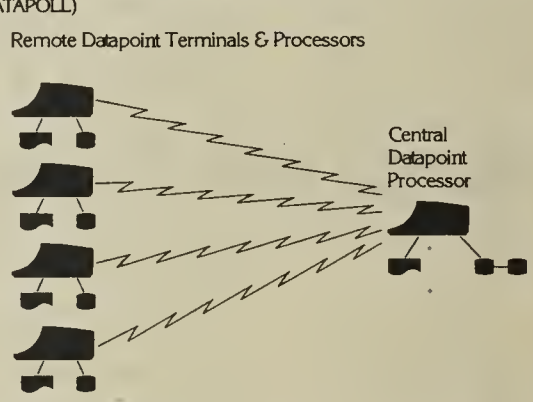
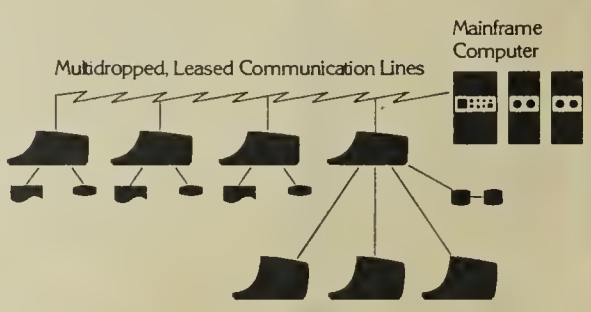


2. FIELD DATA GATHERING & DISTRIBUTION
(DATAPOLL)



3. CONCURRENT COMMUNICATIONS & DATA PROCESSING
(PARTITION SUPERVISOR)

4. REAL-TIME ACCESS TO REMOTE DATA BASES
(MULTILINK & DS3 NET)



Services Grow as Mainframe Mart Grows: Edelson

By Molly Upton
Of the CW Staff

NEW YORK – The services business grows in proportion to the mainframe and computer business, not the other way around, Harry Edelson told the Association of Data Processing Service Organization's (Adapso) analysts meeting here recently.

And the computer market will continue to grow since the increasing improvement in price/performance ratios make it economically necessary to buy new equipment, according to the senior analyst at Drexel, Burnham & Co.

Slicing up a lemon meringue pie, Edelson illustrated that, of the $22 billion DP industry, services amount to about $4 billion; peripherals, $8 million; mainframes, $6 million; and minis and forms suppliers, $2 billion each.

DP services firms should not fear the increasing growth of minis and terminals, but should move with the tide and capitalize upon the expanded markets, he remarked.

"Saturation in the computer business is very far off and it's nonsense to even talk about it," Edelson said. The computer business is not like the auto business, where a consumer buys a new car that does the exact same thing as his old auto because he feels like it.

"In the computer business, you have to buy a new computer. You're an economic idiot if you don't. It's price/performance that impels you to buy it and that's the definition of a growth industry," he said.

The DP industry continues to grow because it "makes economic sense to buy new computers. When that cycle ends, maybe in 10 or 15 years, then you can talk about reaching some element of saturation."

Although computers may not seem to be growing as fast as services, with $6 billion compared with $4 billion, this isn't true in terms of performance.

"Taking the $6 billion worth of mainframes being sold and translating it in terms of the power available 20 years ago, you're talking about $6 trillion in value. So customers are getting much more value for their dollar in hardware than they are in software," he explained.

"The dollar amount to the hardware vendor hasn't grown that fast because he's been giving more value for the dollar.

"Services are growing, but a lot of it is illusory because in selling software packages the vendor is passing along the increased costs of the people writing the programs," Edelson said.

Minicomputer firms will continue to move more into the area of problem solving, which includes software, he said, or else they'll face the "calculator syndrome."

As hardware prices decline, the opportunity for value added will be found increasingly in the services area. For instance, he observed, the mini market has not grown nearly as fast as the small business computer market.

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Data communications is the critical link in Dispersed Data Processing. Without proven, flexible and compatible communications, a computer network can become just scattered hardware and a corporate liability.

Datapoint's leadership in dispersed data processing is due in large part to its broad range of communications hardware and software that provides the system planner with a tremendous range of flexibility in system design. This capability also assures the system user that data will be transferred easily and error-free.

These four areas illustrate ways in which Datapoint hardware and software combine to produce profit-making business processing systems:

1. Remote Batch Processing — Datapoint processors with associated peripherals, including card readers, printers and disk and tape storage units, provide a world of "intelligent" remote batch capability, capable of changing to different communications disciplines as required. Emulation routines are available for IBM HASP 360/20, 2780 and 3780 units, Honeywell GRTS, Univac DCT 2000, Control Data's UT 200 and Burrough's TC 500 terminals.

2. Field Data Gathering and Distribution — for the collection of business data from field locations. Datapoint's DATAPOLL communications packages make it possible for a centrally located Datapoint processor to poll other remotely located unattended Datapoint processors on an overnight basis over standard dialup telephone lines to take advantage of the lowest possible Datacom rates. Field equipment can include either stand-alone Datapoint intelligent terminals or processors. During the day, operators may use the keyboard and video display screen on these units for rapid, error-free data entry. This information is then stored on magnetic media until the optimum transmission time. DATAPOLL maintains full file compatibility between systems as the information is transferred.

3. Concurrent Communications and Processing — Under our sophisticated Partition Supervisor, a 5500 processor in a DATASHARE configuration can handle batch processing, communications and other "background" chores while simultaneously servicing up to 16 remote terminals. Users at these remote terminals can perform all necessary day-to-day interactive data entry and processing while batch needs are being met. This eliminates the need for expensive and time consuming shutdowns at local stations while batch processing or communications work is being handled.

4. Real-time Access to Remote Data Bases — Datapoint offers MULTILINK for real-time access to a host computer's data base. Under MULTILINK, Datapoint 1150 and 5500 stand-alone systems along a multi-drop communications line can perform all necessary local processing tasks, including intelligent data entry and report generation. When data is not available from the data base, the local processor can ask the mainframe for the desired information. 5500 DATASHARE systems may also be connected to the multi-drop lines, allowing users at each of up to 16 field stations full inquiry capabilities with the host mainframe. If the requested data is not available from the host computer, the host computer can request the information from the other processors on the line. This data transfer can occur totally transparent to the user.

For communications with a Datapoint DATASHARE system, another Datapoint software package, DS3NET, enables field office users of Diskette 1100, 1150, 2200 and 5500 systems to access data files in a host DATASHARE system as well as the files on their own local data base. This alleviates the need for costly and time consuming physical transfer of these files from storage unit to storage unit. DS3NET makes it possible to establish a true corporate wide data base without having to physically deposit files in a central storage unit, relieving a substantial burden on data communications capacity.

With this kind of data communications capability, you'll find that Datapoint equipment is hard to beat for efficient and error-free fulfillment of all of a company's communications needs. The Datapoint commitment to data communications reflects its overall analysis of what business users need to build profitable data networks. With its lengthy lead in dispersed processing technology, Datapoint is in an excellent position to help you out with your expanding computer network and data communications needs. For more information contact the sales office nearest you or Marketing Communications, Datapoint Corporation, San Antonio, Texas 78284.

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PDP-11/70 Seen Add-On Target

(Continued from Page 43)

"since the entire add-on market is booming, including 360 and plug-in modules.

"That's one of the reasons we went after the 11/70, that it fits rather nicely with all of the add-ons that we have, particularly where we are slowly becoming an end-user rather than an OEM company," Ray said.

Ampex expects 11/70 add-on sales to be about 2% to 3% of its total business this year, according to Ted Conant, product marketing manager for minicomputer memories.

"We expect our sales on this item to be substantial within a year in terms of shipments. In terms of orders, they'll be substantial by the first of next year," he said.

Ampex's basic memory module is 32K words by 18K or 64K bytes, while the add-on product itself can have two to 16 modules in it, with one to four chassis up to the 11/70's 4M-byte capacity, he said.

"The potential market for PDP 11/70 memory could easily be something in the range of $5 million to $10 million," Conant said.

"If everyone had their products now, the market could be that big now, but all the independents are really just getting started, he said.

Intel's product manager, Gordon Reid, said he felt the 11/70 installed base could amount to some 2,500 users in a relatively short time, within 3 to 5 years.

"The 11/70 is oriented to the timesharing, multiple-use user who is going to require very large amounts of memory, which makes our product attractive on a price/performance basis," he said.

Intel will be pressing DEC the same way it is pressing IBM, he said, by packing more density into a limited space. In the case of the 11/70, Intel is offering 4M bytes of memory where DEC provides 2M bytes.

Advanced Memory Systems will not be going after the 11/70 add-on market, Dick Andreini, marketing manager, stated.

Field Service Seen Microprocessor Worry

By a CW Staff Writer

MONTREAL – "Perhaps the next technological advance will not be a computer on one chip, but a computer on two chips so that the person in the field can get into the micro and modify it," according to Harvey Kofsky, president of Digital Devices Ltd.

Speaking to a group at the Canadian Computer Show and Conference, Kofsky said prior to 1965 it would have taken 90 components to do a simple job that now takes about five.

When the shift from transistors to circuits was made, the designer could still follow a basic block diagram. He had only to know the parameters of the black box, not the insides of each circuit, and didn't have to acquire a whole new vocabulary. With the advent of microprocessors, all that has changed, Kofsky said.

One of the major problem areas in dealing with microcomputers is in troubleshooting them, he noted. With the circuits, the designer who built the circuit passed a diagram on to the field representative who serviced it. With micros, the drawings are not yet standardized so, confusion can result, he stated.

Levels of Complexity

Several levels of complexity keep the field service personnel away from the system, he explained.

First, many systems have the requirement that they must not be shut down, either because it takes too long to get them going again, or because the problem will not appear until the system reaches a certain level of operation, Kofsky said.

Not being able to shut down the system makes micros good on the inside but difficult to operate, he continued.

Secondly, the flow chart really doesn't have anything to do with the data, he noted.

A possible solution to the microcomputer field service problem would be to design micros with two distinct processors. The first would be the system to perform the job at hand and the second a front panel with its own memory that can look at and change the data in the first CPU, Kofsky said.

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CI Notes

Modular, Banks Set Loan Terms

FORT LAUDERDALE, Fla. – Modular Computer Systems, Inc. has agreed in principle with its banks to revise its current loan agreement. The revision would effectively remedy defaults caused by the company's recently reported second quarter loss.

Subject to satisfactory documentation, the revised loan agreement would convert Modcomp's $11.9 million of loans outstanding into a revolving demand loan, the firm said.

In addition, the banks will continue to have a security interest in a substantial amount of company assets.

Modcomp expects to incur a loss for the third quarter, but said actions taken to correct the problems of the second quarter are expected to benefit fourth quarter results.

Semi Sales Soar

PALO ALTO – Based on sales and booking data for July and cumulative data for the first seven months of 1976, the Western Electronics Manufacturers Association (Wema) reiterated its prediction that the U.S. semiconductor industry will probably exceed the 28% gain estimated earlier this year.

Worldwide sales of all U.S.-based semiconductor manufacturers totaled $262 million during July, reflecting the normal slowing of shipments during summer vacation months, Wema said.

Integrated circuits accounted for $156 million and discrete devices $106 million.

New orders booked during the month totaled $307 million, divided at $189 million for ICs and $118 million for discrete devices, the organization noted.

The industry recorded cumulative shipments of $1.9 billion for the first seven months of the year and cumulative bookings of $2.2 billion, Wema said.

'77 NCC Selling Out

MONTVALE, N.J. – Around 90% of the exhibit space for the 1977 National Computer Conference ('77 NCC) has already been contracted for, according to the American Federation of Information Processing Societies (Afips).

More than 1,000 booths, representing over 200 organizations have been reserved for the conference which will be held at the Dallas Convention Center, June 13-16.

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Merger Activity Flat

CHICAGO – Merger announcements in the computer manufacturing and services field in the first half of 1976 totaled 27, the same as the 27 recorded in the first half of 1975, according to W.T. Grimm & Co., merger consultants.

Merger activity in the first half of 1976 for the 40 industries covered by the Grimm study revealed 1270 transactions, up 5% from the 1205 recorded in the first half of last year.

The increased merger activity in the second quarter can be attributed to the Dow Jones Industrial Average passing the 1000 mark, which reflects the improvement in business and economic conditions, according to William T. Grimm, president. With inflation on a tight rein and interest rates at reasonable levels in terms of rising loan demand, he forecast higher merger activity as the year progresses.

Means of payment for companies within the computer group followed the pattern for overall industry. Of the 18 transactions on which price data was available 9 were for cash, 7 for stock, and 2 for a combination of cash, stock and/or debt.

For all industry, cash was by far the favorite, accounting for 52%, followed by stock with 26%, combinations for 19% and debt for 3%, according to Grimm.

Divisional or partial sales in the computer group were lower than the overall industry percentage. Of the group's 27 mergers, 10, or 37%, were fractional in nature.

For all industry, such transactions – sales of divisions, subsidiaries, product lines or 10% or more of the company's assets – constituted 54% of total merger announcements in the first half of 1976.

CFI Says 'Not Me' to Normal Selling

Special to Computerworld

ANAHEIM, Calif. – In a "me too" media products market, one supplier is saying "not me" to the standard distribution methods of such industry leaders as IBM, Memorex and 3M.

In five years, CFI Memories, Inc. has grown from zero to $11 million in sales, largely on its particular end-user distribution approach, one that company officials say will lead CFI into a much larger market share in the near future.

Unlike most media manufacturers, CFI has based its end-user marketing strategy on the use of independent sales representatives, who not only sell CFI disk packs, cartridges or floppy disks, but many other office supplies for data processing departments.

Other large media products manufacturers distribute their products through a direct sales force or a combination of direct and independent sales people, Robert Miller, vice-president of domestic sales, said.

The problem with those methods, he claimed, is the first is geared to large buyers whose orders can support the high overhead of a direct sales network and the second causes confusion and abrasion about sales people's territories, all leading to high turnover in personnel.

"We don't feel either of those two systems can be very successful in tomorrow's market," Miller said. "The future market will demand high customer service, competitive prices and quality, even in small orders."

Despite their independent status, its reps are treated much like direct sales people but, CFI doesn't have the overhead costs..

"Our philosophy is that we can foster as much loyalty and motivate independent reps as effectively as if they worked for us directly," Miller said.

To that end, CFI initiated some "firsts" in the industry at the time: CFI will handle all accounts receivables for reps, franchises are free, a Wats telephone line to CFI for direct customer service frees reps of most service obligations and CFI maintains flexible billing procedures for orders.

CFI's most recent rep support changes mark a significant step in commitment to the independent organization, according to Miller. Two full-time regional sales managers have been hired to support the reps. But, they serve as trainers and technical guidance managers as opposed to bosses, Miller explained.

"Many companies have used such a move to start a trend toward bringing sales in-house. We are doing just the opposite, helping strengthen the reps we do have and recruit more independent reps for areas we don't cover currently," Miller added.

But, why is CFI putting so much effort into supporting salespeople who don't have to sell CFI products?

"It's rather simple. Frankly, it is the most inexpensive marketing tool for our products," Miller said. "Our products have a low unit price and profit margin. The cheaper it is to market, the more competitive our prices can be and the higher the profitability."

"We believe that as the market diversifies, with the smaller mainframe sites, distributed data processing applications and minicomputer users becoming a very large part of the media buyers, our service-oriented approach will give us a leading edge in market penetration," he said.

Executive Corner

■ Dr. An Wang has been elected chairman of the board of directors of Wang Laboratories, Inc.

■ L.D. Altman, president of Fabri-Tek Inc. has resigned as president and member of the board of directors. M.F. Mickelson has been appointed in his place.

■ Richard L. Karpen, a former executive of Control Data Corp., has returned to that company as president of Computing Devices Co. of Canada.

■ Edwin R. Campbell has been appointed president of the H.M. Storms Co., a division of Mohawk Data Sciences Corp.

■ Donald E. McArthur, president and chief operating officer of Carterfone Communications Corp., has resigned and will be replaced by James K. Devlin. Bill E. Brice has been elected chairman of the board.

■ Ephraim Gitelman has been named president of Computek, Inc.

■ Peter Haworth has been appointed director of sales and Brian Quarm as director of manufacturing at Data Recording Instrument Co., Ltd.

■ Roy L. Ash has become chairman and chief executive officer of Addressograph-Multigraph Corp.

■ Edward J. Gunnigle has been appointed to the board of directors of Applied Digital Data Systems, Inc. (ADDS).

■ Norman Frank has been appointed vice-president and treasurer of Compuscan, Inc.

■ Henry W. Weiss has been appointed vice-president of product marketing of Centronics Data Computer Corp.

■ Ronald L. York has been appointed vice-president/systems management for Informatics, Inc's Information Processing Services Division.

■ Dale W. Darnley has become vice-president of Industrial Systems Division of Brandon Applied Systems, Inc. and Jack J. Merkin has become vice-president for the System Development Division.

■ John P. Emmerich has been appointed vice-president of administration for Ontel Corp.

■ Gerald S. Newton has been appointed vice-president of media development for Information Terminals Corp.

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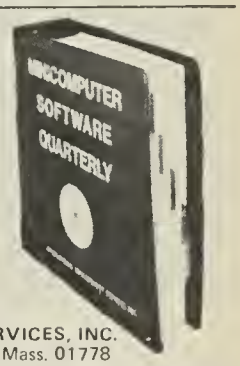

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CIRCULATION DEPARTMENT

Process Control Market to Grow At Compound 15%/Year Rate: CSI

SAN JOSE, Calif. – The market for U.S.-made process control equipment will grow at a compound annual rate of 15% through 1980, according to Creative Strategies, Inc. (CSI).

Shipments by U.S. suppliers will grow from the current level of $1.96 billion to $4.03 billion by 1980, a CSI report said, noting the industry spent $3 billion on process control equipment last year although it is cautious about becoming fully automated.

The projected growth "will be driven by pressure to increase productivity and a growing recognition that automatic control can help this," the report said.

Growth in international markets will be faster than in U.S. markets as foreign manufacturers try to catch up to the U.S. in productivity, the report stated, predicting international markets will represent 48% of the total demand by 1980.

"Also contributing to the expanding use of process control equipment is the increased importance of energy conservation and pollution abatement," it added.

Primary, Secondary Reasons

High purchase, installation and programming costs are secondary considerations in determining whether to install a process control system, according to CSI. The threat of system failure, which could cause a plant to completely shut down, is the main reason industrial automation is not always implemented, it explained.

Industry is cautious in choosing its suppliers mainly because of the risk involved in installing process control systems, the report stated, noting the market is therefore highly segmented and served by many specialists.

NDN Schedules Regional Shows

LOS ALTOS, Calif. – The schedule for the 1976-77 Computer Shows, one-day regional presentations for the OEM and end-user markets sponsored by Norm De Nardi Enterprises (NDN), has been finalized.

The two remaining presentations this fall will be the New England Computer Show at the Chateau de Ville in Framingham, Mass., on Oct. 14 and the California Computer Show in Palo Alto on Dec. 2 at the Hyatt Cabana.

The 1977 schedule will include the usual four California and one New England show.

Further information is available from NDN at 95 Main St., Los Altos, Calif. 94022.

Officers, Directors Elected by Electro/77

BOSTON – New officers and members of the board of directors of Electro/77 have been elected.

Frank Tylinski of Frank Tylinski Co. was elected chairman of the board and Richard L. Weaver of Hewlett-Packard Co. was named vice-chairman.

Frank H. Williams of Servo Corp. of America was elected convention director while Arthur Hansen of Hansen Associates was elected show director.

Newly elected members of the Electro/77 board include Dr. Harold Goldberg of Data Precision Corp.; Carroll G. Killen Jr. of Sprague Electric; Arthur L. Rossoff of the Polytechnic Institute of New York; and Frank E. Schink of the Port Authority of New York and New Jersey.

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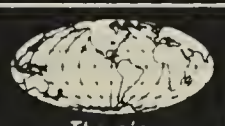

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B.A. degree in computer science or related field or equivalent experience with on-line (teleprocessing) system including over five years experience in programming (COBOL and Assembler Language). Perform technical and supervisory duties to design, develop, implement and supervise online systems, including record keeping systems and procedures for our South Texas clients. Send resume and salary expectation to Personnel, Education Service Center, Region 20, 1550 N.E. Loop 410, San Antonio, Texas 78209.

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Minimum 4 years OS Systems Programming and 2 years VS1. Applicants should also have 3704/3705 and teleprocessing experience along with CICS or CICSVS systems programming.

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Minimum 3 years data processing experience including JCL, teleprocessing and assembly language. OS or OS/VS1 systems programming experience a must.

SENIOR PROGRAMMER
Two or more years COBOL or other high level language, plus a familiarity with OS or VS, JCL, utilities and debugging. A desire to work with clinical systems a must.

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Senior Software Engineer

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Software Engineer

Responsible for the development and implementation of complex data reduction programs required to analyze the behavior and performance of IBM VS operating systems. Previous background in CPE or CME disciplines coupled with a minimum of 5 years Systems Analyst/Programmer Analyst experience required. Familiarity with list processing techniques desired.

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- Teleprocessing network planning, load analysis and performance tuning of on-line systems experience a definite plus.
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Candidates must have considerable experience in the installation and maintenance of SVS or MVT and HASP. They must be proficient in Assembler language programming and system/job abend analysis.

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RCA

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Systems Programmer

San Francisco Bay Area

Qualified candidates should be experienced in one of the following areas:

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- Data Base Systems: IMS, DB or DC components
- Teleprocessing Systems: CICS, 3705-NCP

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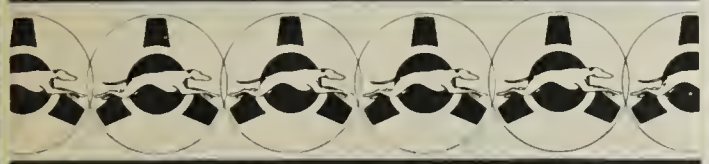

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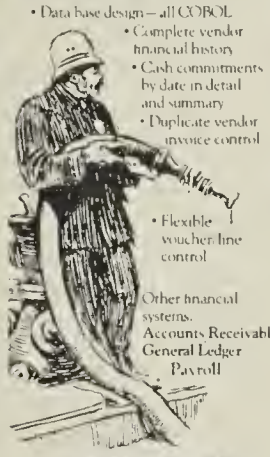

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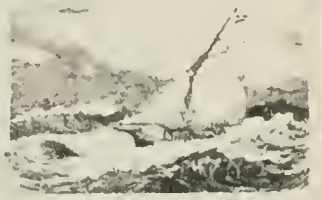

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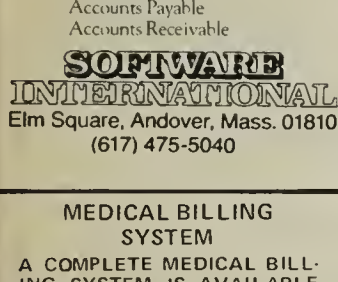

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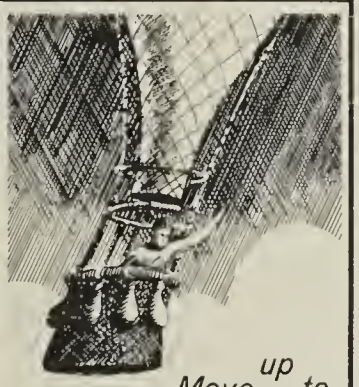

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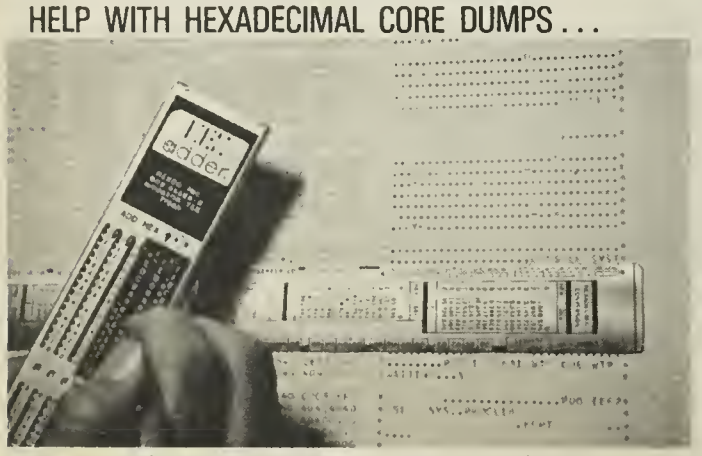

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Rapidata Sees 1977 Down

FAIRFIELD, N.J. – Rapidata, Inc.'s revised contracts to provide services to New York Telephone could reduce the firm's revenues in 1977, its president announced.

A service contract with Acts Computing, however, will partially offset the potential revenue loss, Robert J. O'Brien said.

Rapidata has signed two revised long-term agreements, valued at approximately $8.6 million, with New York Telephone.

One agreement calls for the exclusive use by New York Telephone of one of Rapidata's dual-processor Honeywell 400 systems for a two-year period.

In an unrelated development, Rapidata entered into a two-year agreement with Acts Computing to supply the services company with Honeywell and DEC computer services to meet Acts' customer requirements.

The minimum value of this contract is in excess of $900,000, according to a company spokeswoman.

Revenues Up, Net Slips In Incoterm Six Months

NATICK, Mass. – Incoterm Corp.'s first-quarter revenues rose, but earnings were half those of the year-ago period.

Second-quarter results also reflected an increase in revenues, but earnings began to recover and were only slightly behind the year-ago period. The same held true for the six-month figures.

In the first quarter, revenues totaled $8.2 million compared with $7.6 million in the same period last year. Earnings dipped to $356,000 or 18 cents a share compared with $713,000 or 36 cents a share after a $193,000 tax credit in the 1975 quarter.

In the second quarter, earnings recovered to $556,000 or 28 cents a share, down from $585,000 or 29 cents a share in the 1975 period.

Revenues for the period were $8.9 million compared with $8 million a year ago.

For the six months, earnings totaled $912,000 or 46 cents a share compared with $1.3 million or 65 cents a share, including the $193,000 tax credit, in the 1975 half-year.

Revenues for the six months were $17.1 million compared with $15.6 million in the 1975 period.

Documation Net Rises in Half Year

MELBOURNE, Fla. – Documation, Inc.'s earnings rose 33% in its first quarter since going public.

Earnings for the second quarter ended Aug. 13 were $634,695 or 24 cents a share compared with $478,170 or 19 cents a share in the same quarter last year.

Revenues rose to $5.4 million from $3.7 million in the year-ago quarter.

For the six months, earnings rose to $1 million or 39 cents a share compared with $736,128 or 29 cents a share in the year-ago period.

Revenues for the six months totaled $8.7 million compared with $6.2 million in the 1975 half-year.

During the second quarter, Documation shipped its first DOC 2250 printer subsystems, which it had previously marketed only to OEMs, to end users.

The continued rise in earnings and total revenues reflected increased shipments of card-handling products, the start of "significant" shipments of the LC 50 card subsystem and initial DOC 2250 shipments, according to S. Ray Halbert, Documation president.

Acquisitions

NCR Corp. has acquired Data Pathing, Inc. The data collection systems firm will operate as a wholly owned subsidiary.

Automatic Data Processing, Inc. has agreed in principle to acquire CPI Group, Inc. for about 240,000 shares of common stock valued at about $7.3 million.

Greyhound Corp. has agreed to acquire the outstanding minority interest in Greyhound Computer Corp., an 84% owned subsidiary.

Tymshare, Inc. has acquired Unitax, Inc. Under terms of the agreement, 144,000 shares of Tymshare common will be exchanged with Unitax shareholders on the basis of one share of Tymshare common for four shares of Unitax stock.

Data Systems, Inc. has acquired Data Midwest Corp.

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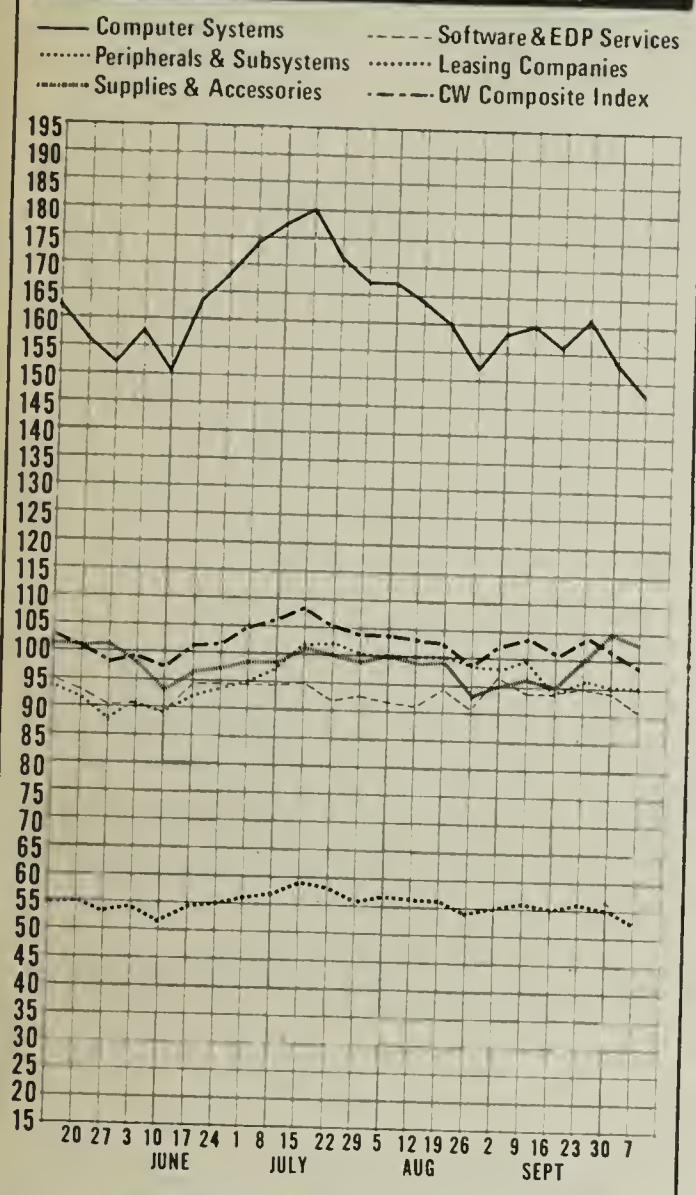

Earnings Reports

AUTOMATIC DATA PROCESSING
Year Ended June 30

	1976	1975
Shr Ernd	$1.22	a$.96
Revenue	187,922,000	154,682,000
Earnings	17,660,000	13,848,000
3 Mo Shr	.35	a.29
Revenue	52,359,000	42,140,000
Earnings	5,146,000	4,143,000

a-Adjusted in June 1976 for two-for-one stock split.

COMPUGRAPHIC
Three Months Ended June 26

	1976	1975
Shr Ernd	$.95	$.84
Revenue	26,254,000	19,117,000
Earnings	2,048,000	1,566,000
9 Mo Shr	2.76	2.35
Revenue	70,480,000	55,852,000
Earnings	5,489,000	4,323,000

COMPUTER ELECTION SYSTEMS
Year Ended March 31

	1976	1975
Shr Ernd	$.90	a$.82
Revenue	8,146,352	8,021,396
Earnings	1,089,359	941,773
3 Mo Shr	.69	a.31
Revenue	3,997,123	2,605,851
Earnings	831,515	357,608

a-Adjusted for 25% stock dividend in July 1975.

COMPUTER PRODUCTS
Three Months Ended June 25

	1976	1975
Shr Ernd	$.11	$.09
Revenue	1,449,643	1,118,045
Earnings	129,857	102,905
6 Mo Shr	.21	.13
Revenue	2,796,293	2,088,110
Earnings	243,274	144,045

FABRI-TEK
Year Ended April 2

	a1976	1975
Revenue	$28,859,948	$35,258,176
Loss	1,542,052	1,678,899

a-53 weeks.

ENNIS BUSINESS FORMS
Three Months Ended Aug. 31

	1976	1975
Shr Ernd	$.26	$.27
Revenue	15,778,787	13,931,717
Earnings	577,954	634,138
6 Mo Shr	.50	.49
Revenue	30,633,319	27,333,185
Earnings	1,108,207	1,134,549

LEGAL NOTICE
U.S. POSTAL SERVICE
STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION
(Required by 39 U.S.C. 3685)

1. Title of publication: Computerworld
2. Date of filing: September 29, 1976.
3. Frequency of issue: Weekly (except single combined issue for the last week in December and the first week in January).
3a. No. of issues published annually: 51
3b. Annual subscription price: $15.00
4. Location of known office of publication: 797 Washington St., Newtonville, Mass. 02160 (Middlesex County).
5. Location of the headquarters or general business offices of the publishers: 797 Washington St., Newtonville, Mass. 02160.
6. Names and addresses of the publisher, editor and managing editor: Publisher, Patrick J. McGovern, 60 Austin St., Newtonville, Mass. 02160. Editor, E. Drake Lundell, 797 Washington St., Newtonville, Mass 02160. Managing Editor, none.
7. Owner, International Data Group, 60 Austin St., Newtonville, Mass. 02160.
8. Known bondholders, mortgagees and other security holders owning or holding 1% or more of total amount of bonds, mortgages or other securities: International Data Group, 60 Austin St., Newtonville, Mass. 02160.
9. For completion by nonprofit organizations authorized to mail at special rates: Not applicable.
10. Extent and nature of circulation:

	Average No. Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Issue Published Nearest to Filing Date
A. Total number of copies printed (net press run)	78,843	81,575
B. Paid circulation		
1. Sales through dealers and carriers, street vendors and counter sales	none	none
2. Mail subscriptions	74,265	77,807
C. Total paid circulation	74,265	77,807
D. Free distribution by mail; carrier or other means, samples, complimentary and other free copies	2,503	2,703
E. Total distribution (Sum of C and D)	76,768	80,510
F. Copies not distributed		
1. Office use, left over, unaccounted, spoiled after printing	2,075	1,065
2. Returns from news agents	none	none
G. Total (Sum of E, F1 and ~~2~~ — should equal net press run shown in A)	78,843	81,575

I certify that the statements made by me above are correct and complete.

Signed Walter W. Boyd
President

TRADE*QUOTES

Computerworld Stock Trading Summary

CLOSING PRICES WEDNESDAY, OCTOBER 6, 1976

All statistics compiled, computed and formatted by TRADE★QUOTES, INC. Cambridge, Mass. 02139

COMPUTER SYSTEMS

EXCH		1976 PRICE RANGE (1)	CLOSE OCT 6 1976	WEEK NET CHNGE	WEEK PCT CHNGE
N	BURROUGHS CORP	84-108	88 1/4	-4 1/2	-4.8
O	COMPUTER AUTOMATION	10- 19	15	- 5/8	-4.0
N	CONTROL DATA CORP	18- 27	23 1/4	- 1/4	-1.0
N	DATA GENERAL CORP	40- 60	45 1/8	- 5/8	-1.3
O	DATAPOINT CORP	24- 46	28 3/4	-2 3/4	-8.7
O	DIGITAL COMP CONTROL	2- 7	5 7/8	0	0.0
N	DIGITAL EQUIPMENT	138-191	153 1/4	-4 3/4	-3.0
N	ELECTRONIC ASSOC.	2- 5	2 3/4	0	0.0
A	ELECTRONIC ENGINEER.	7- 16	8 3/8	- 5/8	-6.9
N	FOXBORO	28- 50	45 3/4	-2 1/4	-4.6
O	GENERAL AUTOMATION	4- 11	4 3/8	- 3/8	-7.8
O	GPI COMPUTER CORP	1- 1	5/8	- 1/8	-16.6
N	HEWLETT-PACKARD CO	85-117	89 1/2	-3 5/8	-3.8
N	HONEYWELL INC .	34- 56	44 1/8	-1 1/2	-3.2
N	IBM	227-288	279 1/2	-2	-0.7
O	MANAGEMENT ASSIST	1- 3	1 3/8	- 1/8	-12.0
O	MEMOREX	18- 33	22	+1 1/8	+5.3
O	MICRODATA CORP	10- 28	22 5/8	-2 5/8	-10.3
O	MODULAR COMPUTER SYS	4- 14	4 1/4	- 1/4	-5.5
N	NCR	24- 37	34 3/8	- 1/8	-0.3
O	PRIME COMPUTER INC	4- 14	12 1/2	+ 3/4	+6.3
N	PERKIN-ELMER	19- 27	21 1/2	-1 3/8	-6.0
N	RAYTHEON CO	45- 67	62 1/2	-1 3/8	-2.1
N	SPERRY RAND	40- 52	47 1/4	-1	-2.0
O	SYCOR INC	12- 31	12	- 1/2	-4.0
A	SYSTEMS ENG. LABS	6- 10	7 3/8	+ 3/4	+11.3
N	VARIAN ASSOCIATES	13- 17	13 1/2	- 5/8	-4.4
A	WANG LABS.	11- 20	14 5/8	- 7/8	-5.6

LEASING COMPANIES

EXCH		1976 PRICE RANGE (1)	CLOSE OCT 6 1976	WEEK NET CHNGE	WEEK PCT CHNGE
O	COMDISCO INC	3- 10	8 3/4	+1 1/4	+16.6
A	COMMERCE GROUP CORP	2- 3	2	0	0.0
A	COMPUTER INVSTRS GRP	1- 3	1 5/8	0	0.0
M	PATRONIC RENTAL	1- 8	3/4	- 1/4	-25.0
A	DCL INC	1- 1	5/8	0	0.0
N	DPF INC	5- 8	7 1/8	+ 1/4	+3.6
N	ITEL	6- 15	13	+ 3/8	+2.9
O	LEASCO CORP	6- 19	15 7/8	- 3/8	-2.3
O	LEASPAC CORP	0- 1	1/4	0	0.0
O	NRG INC	0- 1	3/8	0	0.0
A	PIONEER TEX CORP	6- 9	7 3/8	0	0.0
N	U.S. LEASING	7- 12	9	- 1/2	-5.2

SOFTWARE & EDP SERVICES

EXCH		1976 PRICE RANGE (1)	CLOSE OCT 6 1976	WEEK NET CHNGE	WEEK PCT CHNGE
O	ADVANCED COMP TECH	1- 3	1 3/8	- 1/8	-8.3
O	ANACOMP INC	6- 11	7 1/8	0	0.0
A	APPLIED DATA RES.	2- 4	3	- 1/4	-7.6
N	AUTOMATIC DATA PROC	17- 35	29	-2 1/4	-7.1
O	COLEMAN AMERICAN COS	2- 6	1 7/8	- 1/8	-6.2
O	COMPUTER DIMENSIONS	3- 7	6	+ 1/4	+4.3
O	COMP ELECTION SYSTMS	5- 9	5 1/4	0	0.0
O	COMPUTER HORIZONS	0- 3	1 1/2	0	0.0
O	COMPUTER NETWORK	2- 6	5 3/8	+ 3/8	+7.5
N	COMPUTER SCIENCES	4- 8	6 1/8	0	0.0
O	COMPUTER TASK GROUP	1- 1	1 1/2	0	0.0
O	COMPUTER USAGE	3- 6	3	- 1/4	-7.6
O	COMSHARE	2- 9	4 3/4	- 1/2	-9.5
O	DATA DIMENSIONS INC	2- 4	2 7/8	0	0.0
O	DATATAB	1- 1	1 3/8	0	0.0
N	ELECTRONIC DATA SYS.	12- 18	15 5/8	+ 1/8	+0.8
O	INFONATIONAL INC	1- 1	1/8	0	0.0
O	INSYTE CORP	0- 0	1 1/2	+ 1/8	+9.0
O	IPS COMPUTER MARKET.	1- 2	1 1/8	0	0.0
O	KEANE ASSOCIATES	2- 4	2 1/8	- 1/8	-5.5
O	KEYDATA CORP	2- 5	1 1/2	0	0.0
O	LOGICON	3- 4	3 3/8	- 1/4	-6.8
A	MANAGEMENT DATA	1- 3	2 1/4	- 1/8	-5.2
A	NATIONAL CSS INC	13- 25	19 1/8	-1 1/2	-7.2
A	ON LINE SYSTEMS INC	18- 22	18 3/8	+ 1/2	+2.7
N	PLANNING RESEARCH	3- 5	3 3/4	0	0.0
O	PROGRAMMING & SYS	1- 1	3/8	0	0.0
O	PAPICDATA INC	2- 5	1 5/8	- 1/8	-7.1
O	PEYNOLDS & PEYNOLD	13- 21	15 1/4	- 3/4	-4.6
O	SCIENTIFIC COMPUTERS	0- 0	7/8	- 1/4	-22.2
O	TYMSHARE INC	15- 28	14 1/2	-3 1/2	-19.4
A	URS SYSTEMS	3- 5	3 3/4	- 1/8	-3.2
N	WYLY CORP	2- 7	1 1/2	0	0.0

PERIPHERALS & SUBSYSTEMS

EXCH		1976 PRICE RANGE (1)	CLOSE OCT 6 1976	WEEK NET CHNGE	WEEK PCT CHNGE
N	ADDRESSOGRAPH-MULT	8- 13	10 5/8	- 1/4	-2.2
O	ADVANCED MEMORY SYS	4- 10	6 1/4	- 3/8	-5.6
N	AMPEX CORP	5- 10	6 3/8	- 1/2	-7.2
O	ANDERSON JACOBSON	2- 4	2 7/8	0	0.0
O	APPLIED DIG DATA SYS	13- 25	18 1/2	-1 3/4	-8.6
O	BEEHIVE MEDICAL ELEC	3- 9	9	+ 1/8	+1.4
A	BOLT,BERANEK & NEW	7- 11	9	- 1/4	-3.0
N	BUNKER-RAMO	5- 10	7 1/8	- 1/8	-1.7
A	CALCOMP	4- 7	4 1/8	- 3/8	-8.3
O	CAMBRIDGE MEMORIES	0- 6	1/4	- 1/8	-33.3
N	CENTRONICS DATA COMP	20- 36	32 7/8	- 3/4	-2.2
O	CODEX CORP	22- 42	28 1/2	-3 1/2	-10.9
O	COGNITRONICS	1- 1	3/4	0	0.0
O	COMPUTER COMMUN.	0- 0	5 5/8	- 1/8	-2.1
O	COMPUTER CONSOLES	4- 7	4 1/2	0	0.0
A	COMPUTER EQUIPMENT	1- 3	1 3/4	0	0.0
O	COMPUTER TRANSCEIVER	0- 0	1	0	0.0
O	COMTEN	4- 9	7 1/4	-1	-12.1
N	CONRAC CORP	20- 25	21	-1 1/2	-6.6

DATA ACCESS SYSTEMS

EXCH		1976 PRICE RANGE (1)	CLOSE OCT 6 1976	WEEK NET CHNGE	WEEK PCT CHNGE
O	DATA ACCESS SYSTEMS	0- 0	4 3/4	0	0.0
O	DATA 100	7- 13	8 1/8	- 7/8	-9.7
A	DATA PRODUCTS CORP	5- 15	11 3/8	-1 3/8	-10.7
O	DATA TECHNOLOGY	1- 2	1 3/8	0	0.0
O	CATUM INC	1- 2	1 1/8	- 1/8	-10.0
O	DECISION DATA COMPUT	1- 4	1 1/2	0	0.0
O	DELTA DATA SYSTEMS	1- 1	3/4	0	0.0
N	ELECTRONIC M & M	1- 4	3 1/4	- 1/8	-3.7
O	FABRI-TEK	1- 1	5/8	0	0.0
O	GENERAL COMPUTER SYS	1- 2	7/8	0	0.0
N	HAZELTINE CORP	4- 12	8 1/8	- 3/8	-4.4
N	HARRIS CORP	34- 55	51	-1 1/2	-2.8
A	INCOTERM CORP	9- 20	13 1/8	+1 3/8	+11.7
O	INFOREX INC	3- 7	4 1/2	- 1/2	-10.0
O	INFORMATION INTL INC	10- 18	11 5/8	- 5/8	-5.1
O	INTEL CORP	54-109	54	-5 1/2	-9.2
A	LUNDY ELECTRONICS	3- 7	3 1/2	- 1/4	-6.6
O	MSI DATA CORP	3- 7	5 3/8	- 1/2	-8.5
A	MILGO ELECTRONICS	15- 21	16 5/8	- 3/4	-4.3
N	MOHAWK DATA SCI	3- 10	6 3/4	- 5/8	-8.4
O	PENRIL CORP	0- 0	2	0	0.0
A	RERTEC CORP	3- 8	6	- 3/4	-11.1
A	POTTER INSTRUMENT	2- 2	1 3/4	0	0.0
C	PRECISION INST.	3- 10	3	0	0.0
O	QUANTOR CORP	4- 6	4 1/8	0	0.0
O	RECOGNITION EQUIP	6- 11	8 1/2	- 5/8	-6.8
N	SANDERS ASSOCIATES	6- 11	8 1/2	- 5/8	-6.8
O	SCAN DATA	2- 4	1 5/8	- 1/8	-7.1
O	STORAGE TECHNOLOGY	9- 13	10 1/4	- 5/8	-5.7
O	T BAR INC	5- 10	5 3/4	0	0.0
O	TALLY CORP.	4- 6	4	0	0.0
O	TEC INC	3- 6	6 1/4	0	0.0
N	TEKTRONIX INC	45- 69	64 7/8	- 1/8	-0.1
N	TELEX	2- 5	2 3/4	- 1/8	-4.3
O	WANGCO INC	11- 22	21 1/8	0	0.0
O	WILTEK INC	2- 2	2 3/4	0	0.0

SUPPLIES & ACCESSORIES

EXCH		1976 PRICE RANGE (1)	CLOSE OCT 6 1976	WEEK NET CHNGE	WEEK PCT CHNGE
O	ADVANCED SYSTEMS INC	1- 4	3 3/8	+ 1/8	+3.8
O	BALTIMORE BUS FORMS	3- 5	3 5/8	0	0.0
A	BARRY WRIGHT	6- 10	9 1/4	- 1/8	-1.3
O	CYBERNATICS INC	1- 1	1/2	0	0.0
A	DATA DOCUMENTS	25- 45	45 1/8	+1 1/8	+2.5
O	DUPLEX PRODUCTS INC	13- 24	14	- 1/2	-3.4
N	ENNIS BUS. FORMS	6- 8	6 1/8	- 1/8	-2.0
O	GRAHAM MAGNETICS	8- 13	9 3/4	0	0.0
O	GRAPHIC CONTROLS	13- 19	16	- 1/2	-3.0
N	3M COMPANY	53- 66	62 1/2	-2 1/4	-3.4
O	MOORE CORP LTD	33- 51	33	-2	-5.7
N	NASHUA CORP	11- 18	16 1/2	-1	-5.7
O	STANDARD REGISTER	15- 19	16 1/2	- 1/4	-1.4
O	TAB PRODUCTS CO	5- 11	9 3/4	- 1/4	-2.5
N	UARCO	20- 25	20 1/8	+ 1/8	+0.6
A	WABASH MAGNETICS	4- 9	7 3/4	- 1/4	-3.1
N	WALLACE BUS FORMS	18- 25	22	- 1/2	-2.

EXCH: N=NEW YORK; A=AMERICAN; P=PHIL-PALT-WASH
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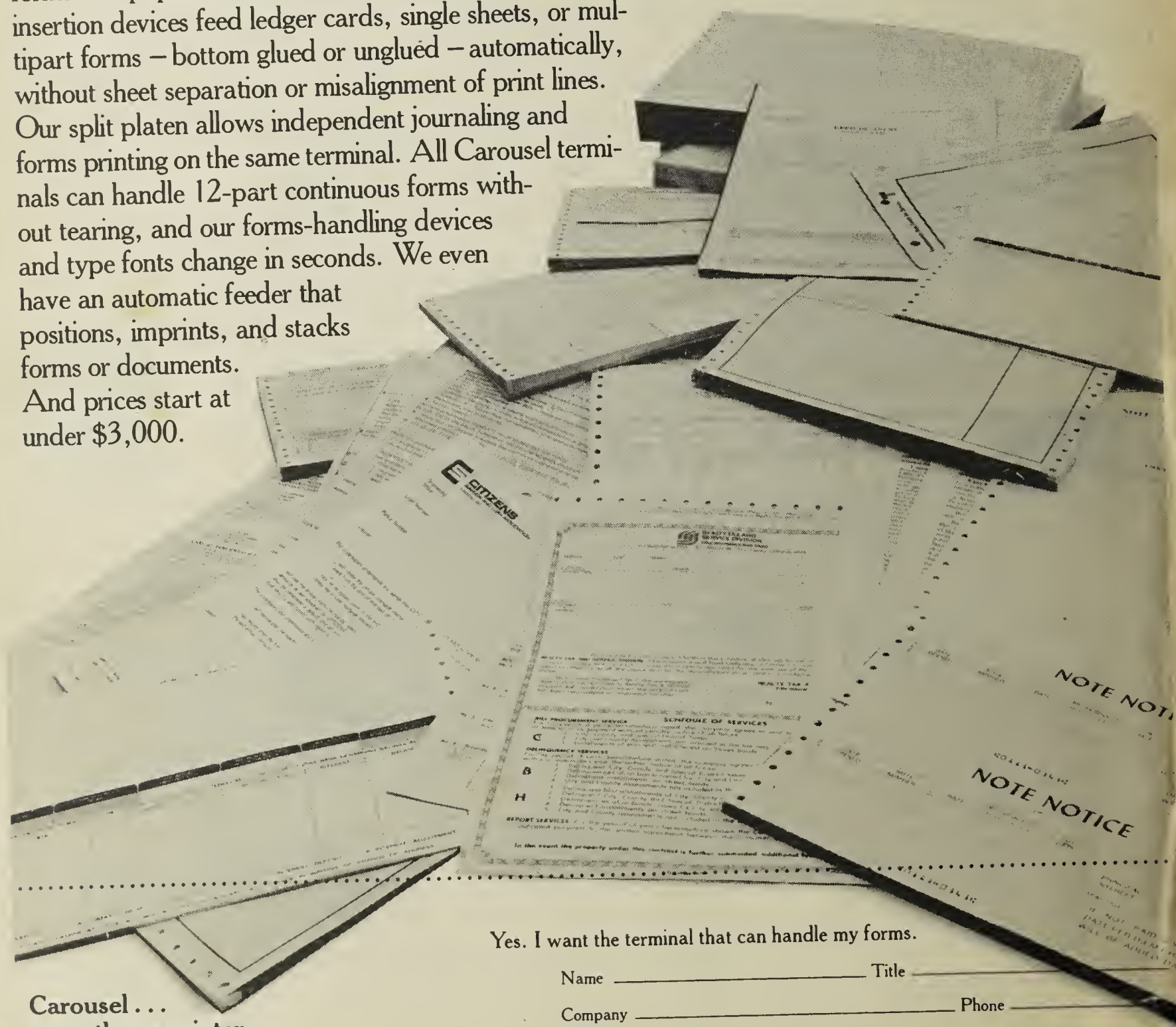

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